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ENVIRONMENTAL ASSESSMENT BOARD

VOLUME:

XXVI

DATE:

Monday, July 11th, 1988

BEFORE:

M.I. JEFFERY, Q.C., Chairman

E. MARTEL, Member

A. KOVEN, Member



FOR HEARING UPDATES CALL (TOLL-FREE): 1-800-387-8810

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HEARING ON THE PROPOSAL BY THE MINISTRY OF NATURAL
RESOURCES FOR A CLASS ENVIRONMENTAL ASSESSMENT FOR
TIMBER MANAGEMENT ON CROWN LANDS IN ONTARIO

IN THE MATTER of the Environmental
Assessment Act, R.S.O. 1980, c.140;

- and -

IN THE MATTER of the Class Environmental
Assessment for Timber Management on Crown
Lands in Ontario;

- and -

IN THE MATTER of an Order-in-Council
(O.C. 2449/87) authorizing the
Environmental Assessment Board to
administer a funding program, in
connection with the environmental
assessment hearing with respect to the
Timber Management Class
Environmental Assessment, and to
distribute funds to qualified
participants.

Hearing held at the Ramada Prince Arthur
Hotel, 17 North Cumberland St., Thunder
Bay, Ontario, on Monday, July 11th, 1988,
commencing at 1:00 p.m.

VOLUME XXVI

BEFORE:

MR. MICHAEL I. JEFFERY, Q.C.	Chairman
MR. ELIE MARTEL	Member
MRS. ANNE KOVEN	Member

A P P E A R A N C E S

MR. V. FREIDIN, Q.C.)	MINISTRY OF NATURAL
MS. C. BLASTORAH)	RESOURCES
MS. K. MURPHY)	
MR. B. CAMPBELL)	MINISTRY OF ENVIRONMENT
MS. J. SEABORN)	
MR. R. TUER, Q.C.)	ONTARIO FOREST INDUSTRY
MR. R. COSMAN)	ASSOCIATION and ONTARIO
MS. E. CRONK)	LUMBER MANUFACTURERS'
MR. P.R. CASSIDY)	ASSOCIATION
MR. J. WILLIAMS, Q.C.	ONTARIO FEDERATION OF
	ANGLERS & HUNTERS
MR. D. HUNTER	NISHNAWBE-ASKI NATION
	and WINDIGO TRIBAL COUNCIL
MR. J.F. CASTRILLI)	
MS. M. SWENARCHUK)	FORESTS FOR TOMORROW
MR. R. LINDGREN)	
MR. P. SANFORD)	KIMBERLY-CLARK OF CANADA
MS. L. NICHOLLS)	LIMITED and SPRUCE FALLS
MR. D. WOOD)	POWER & PAPER COMPANY
MR. D. MacDONALD	ONTARIO FEDERATION OF
	LABOUR
MR. R. COTTON	BOISE CASCADE OF CANADA
	LTD.
MR. Y. GERVAIS)	ONTARIO TRAPPERS
MR. R. BARNES)	ASSOCIATION
MR. R. EDWARDS)	NORTHERN ONTARIO TOURIST
MR. B. MCKERCHER)	OUTFITTERS ASSOCIATION
MR. L. GREENSPOON)	NORTHWATCH
MS. B. LLOYD)	

APPEARANCES: (Cont'd)

MR. J.W. ERICKSON, Q.C.) MR. B. BABCOCK)	RED LAKE-EAR FALLS JOINT MUNICIPAL COMMITTEE
MR. D. SCOTT) MR. J.S. TAYLOR)	NORTHWESTERN ONTARIO ASSOCIATED CHAMBERS OF COMMERCE
MR. J.W. HARBELL) MR. S.M. MAKUCH)	GREAT LAKES FOREST PRODUCTS
MR. J. EBBS	ONTARIO PROFESSIONAL FORESTERS ASSOCIATION
MR. D. KING	VENTURE TOURISM ASSOCIATION OF ONTARIO
MR. D. COLBORNE	GRAND COUNCIL TREATY #3
MR. R. REILLY	ONTARIO METIS & ABORIGINAL ASSOCIATION
MR. H. GRAHAM	CANADIAN INSTITUTE OF FORESTRY (CENTRAL ONTARIO SECTION)
MR. G.J. KINLIN	DEPARTMENT OF JUSTICE
MR. S.J. STEPINAC	MINISTRY OF NORTHERN DEVELOPMENT & MINES
MR. M. COATES	ONTARIO FORESTRY ASSOCIATION
MR. P. ODORIZZI	BEARDMORE-LAKE NIPIGON WATCHDOG SOCIETY
MR. R.L. AXFORD	CANADIAN ASSOCIATION OF SINGLE INDUSTRY TOWNS
MR. M.O. EDWARDS	FORT FRANCES CHAMBER OF COMMERCE
MR. P.D. McCUTCHEON	GEORGE NIXON

(iii)

APPEARANCES: (Cont'd)

MR. C. BRUNETTA

NORTHWESTERN ONTARIO
TOURISM ASSOCIATION

I N D E X O F P R O C E E D I N G S

<u>Witness:</u>	<u>Page No.</u>
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I N D E X O F E X H I B I T S

<u>Exhibit No.</u>	<u>Description</u>	<u>Page No.</u>
127	Response by MNR to Interrogatory Question No. 5 posed by CELA.	4430
128	One-page excerpt from Statistics 1986.	4464
129	Response by MNR to Interrogatory Question No. 6 posed by CELA.	4504
130	Response by MNR to Interrogatory Question No. 7 posed by CELA.	4569
131	Excerpts of document entitled: Planned Management of Forests by N.V. Brasnett.	4573

1 ---Upon commencing at 1:05 a.m.

2 THE CHAIRMAN: Good afternoon. Please be
3 seated.

4 ---Discussion off the record

5 THE CHAIRMAN: Okay. Why don't we try
6 and start.

7 MR. CASTRILLI: Mr. Chairman, just one
8 housecleaning matter -- housekeeping matter, excuse me.
9 We now have copies, courtesy of Mr. Freidin, of Exhibit
10 120.

11 THE CHAIRMAN: Very well. That is the
12 1984 Forest Management Manual; is that right?

13 MR. CASTRILLI: Yes, that's correct.

14 MR. FREIDIN: (handed)

15 THE CHAIRMAN: Thank you.

16 MR. CASTRILLI: Mr. Armson, would you
17 like a copy?

18 MR. ARMSON: I would if you have a copy,
19 Mr. Castrilli.

20 MR. CASTRILLI: (handed)

21 MR. ARMSON: Thank you.

22 MR. CASTRILLI: Thank you, Mr. Chairman.

23 JOHN EDWARD OSBORN,
24 KENNETH A. ARMSON, Resumed

25 CONTINUED CROSS-EXAMINATION BY MR. CASTRILLI:

1 Q. Dr. Osborn, I understand from your
2 testimony that the operational cruise procedure can
3 provide the basis for making silvicultural
4 prescriptions; is that correct?

5 DR. OSBORN: A. That was one of the
6 three objectives or part of one of the three objectives
7 that was stated for operational cruise in the 70s.

8 Q. And we see that reflected in your
9 testimony at paragraph 62; is that right?

10 A. That's correct.

11 Q. And can you confirm for me that the
12 operational cruise procedure does not serve an other
13 land animal or plant features?

14 A. Yes.

15 MR. CASTRILLI: Mr. Chairman, I think I
16 wish to introduce the next exhibit, being another
17 interrogatory.

18 THE CHAIRMAN: Exhibit 127.

19 ---EXHIBIT NO. 127: Response by MNR to Interrogatory
20 Question No. 5 posed by CELA.

21 MR. CASTRILLI: Q. Perhaps you would
22 just take one moment to review it, if you haven't
23 already.

24 DR. OSBORN: Q. Okay, all right.

25 Q. Thank you.

1 Now, I understand from your evidence that
2 you do not know what percentage of the area allocated
3 for cutting has been operationally cruised in each year
4 from 1977 to 1987; is that correct?

5 A. That's correct.

6 Q. And that's reflected in your Answer
7 No. (ii) to Question 5 on what is now Exhibit 127?

8 A. Correct.

9 Q. And we see from Question (iii) that
10 the Ministry does not know on what proportion of
11 allocated stands is the information available only from
12 FRI data without cruising; is that correct?

13 A. Questions (ii), (iii) and (iv) all
14 run together. Given that at this point in time I
15 didn't know from a provincial point of view what the
16 values were, but as pointed out in the answer to
17 Question (ii) those data collected or those values
18 would be known at the district level and, in some
19 cases, at the company level as to how much of the
20 allocations were cruised and, therefore, how much of
21 the areas that were allocated were not cruised and,
22 therefore, how much of the areas to which some sort of
23 adjustment factor would have been applied.

24 Q. When say 'unknown' in your answer, I
25 presume you mean, you do not personally know, or the

1 Ministry does not personally know?

2 A. I do not personally know. And as was
3 explained in Question (ii), the answer could be derived
4 from checking with each and every district and with
5 each and every company.

6 Q. But that's the sort of data, for
7 example, we do not see in the statistics reports on an
8 annual basis; is that correct?

9 A. That's correct.

10 Q. And then question -- or Item (iv) on
11 what is now Exhibit 127, we asked:

12 "To what proportion of allocated stands
13 is a correction factor applied to the
14 FRI?"

15 And your answer again was unknown; is
16 that correct?

17 A. Yes.

18 MRS. KOVEN: Excuse me, Mr. Castrilli.
19 What do you mean by correction factor?

20 MR. CASTRILLI: Mrs. Koven, if you look
21 at paragraph 62 of Exhibit 7, page 33, you see there in
22 the first sentence:

23 "Operational cruises may be conducted to
24 verify correct the FRI."

25 MRS. KOVEN: Oh, so it is a verification.

1 MR. CASTRILLI: So we asked.

2 MRS. KOVEN: Okay. We had talked about
3 it terms of verification before.

4 MR. CASTRILLI: Yes, that's correct.

5 Q. Turning again to your answer to the
6 second item on this interrogatory which is now Exhibit
7 127, you say that you do not know what percentage of
8 the area allocated for cutting has been operationally
9 cruised in each year from 1977 to 1987 and you indicate
10 that some is done by forest companies.

11 Now, with reference to your page 231,
12 which is Document 33, you indicate in the chart the
13 amount of operational cruise work that has been done.

14 And I believe in answer to Mr. Tuer's
15 question last Tuesday, July 5th, you indicated that
16 this chart on page 231 is an indication of the amount
17 of the operational cruise work down on Crown land by
18 the Ministry only; is that correct?

19 DR. OSBORN: A. Correct.

20 Q. Does the Ministry obtain the
21 company's operational cruise data on a systematic
22 basis?

23 A. Going from experience I had with
24 companies in the 1970s, the results of those cruise
25 data are shown in what at that time was called the

1 operating plan.

2 So the cruise itself, per se, may or may
3 not be submitted but the results of that cruise, what
4 were the stand by stand values cruised, from experience
5 in the 1970s with companies was contained in the
6 operating plan.

7 Q. What about the experience in the
8 1980s?

9 A. Okay. I can't comment on that
10 because at this point in time I don't work in
11 management planning with the companies. So whether or
12 those data at this point in time or the results of that
13 data are submitted at the stand by stand level, I am
14 not sure.

15 Q. Mr. Armson, are you in a position to
16 help in that regard.

17 MR. ARMSON: A. No, I am not, Mr.
18 Castrilli. I am not familiar with that part of the
19 operation.

20 Q. Can you advise who would be within
21 the Ministry, or whether you would be able to confirm
22 the situation for the 1980s?

23 MR. FREIDIN: My information, Mr.
24 Chairman, is that the information is not recorded in
25 the fashion similar to what was perhaps done in the

1 1970s.

2 MR. CASTRILLI: Thank you, Mr. Freidin.

3 MR. MARTEL: Can I ask a question then.

4 If you were attempting to improve the inventory
5 province-wide, why wouldn't the results of the
6 operational cruises be put against that sort of
7 information to improve the forest inventory?

8 DR. OSBORN: They are, sir. That wasn't
9 the question asked. But with relevance to your
10 question, one of the ways that I described that the FRI
11 might well be brought up to date, corrected, verified
12 in that updating of the FRI procedure, one of the ways,
13 one of the sources of data was to use operational
14 cruise results.

15 In fact, when I described the FRI
16 process, the first step was to go to the field to ask
17 what data they had and there was a list of data we
18 might ask for, one of which was operational cruise
19 results. In fact, I went on to describe in the
20 Algonquin region this year half of the FRI will in fact
21 be operational cruise data.

22 So, yes, your question is right on, where
23 operational cruise data exists, and where in fact the
24 local field people they are an improvement on the FRI
25 estimates, the FRI will enfold those data into the FRI.

1 It will take literally take the FRI stand away,
2 description, and replace that description with an
3 operational cruise result. And that is exactly how the
4 field in fact do verify and correct, as was described,
5 in stand by stand descriptions.

6 MR. MARTEL: Is that two ways though, or
7 does that just stay at the district level because I
8 thought that I heard you tell Mr. Castrilli that that
9 information is at the district level and I am just
10 wondering - I am misreading something somewhere - how
11 come it didn't -- that you said it was at the district
12 level and I thought you said last week in fact it
13 became part of the improvement of the FRI.

14 DR. OSBORN: We have got two different
15 time horizons. At the beginning of a brand new area
16 for brand new FRI main office will go to the districts
17 and ask what data have you got of this kind that kind
18 including operational cruise data. Should those data
19 exist we, in FRI, would enfold those as a part of the
20 FRI answer for the field.

21 So at the beginning of the FRI process
22 where those data exist, operational cruise data exist,
23 we will enfold them in the FRI.

24 Mr. Castrilli is asking, subsequent to
25 that, subsequent to that, after the MAD, the

1 allocations have been done, there very often is a check
2 on the ground as to what actually is there and the
3 operational cruise is done for the variety of reasons
4 described before.

5 Now, this is 3, 4, 5 years down the road
6 from when I first described the process. Now, at that
7 time districts will take those data and they may in
8 fact update at the district level their own FRI stand,
9 by stand, by stand. Now, those changes at this point
10 in time are not operationally coming back to main
11 office because they are on a 20-year cycle, at this
12 point in time.

13 The planned intent with the geographic
14 information system is to in fact take those data back
15 into main office. So it is a matter of timing, Mr.
16 Martel, that's all. There are two different times when
17 this process is being described.

18 MR. CASTRILLI: Q. Dr. Osborn, following
19 up on that, then. If I understand your testimony
20 correctly, it is the intention of the Ministry to
21 eventually incorporate, on a systematic basis, or if
22 you like, bring back to Toronto on a systematic basis
23 the OPC that might be done by companies on a yearly
24 basis?

25 DR. OSBORN: A. Yes, with a whole host

1 of caveats that those data aren't walked up to main
2 office without a whole host of checks as to whether or
3 not they are real and it is not just OPC, it is the
4 whole sources of changes both mapped and unmapped in
5 the sense of just data, that the whole plan is to
6 update the entire FRI process on a regular basis.

7 And in fact one of the reasons for
8 geographic information systems was to aid that process.
9 In fact, one of the reasons for giving the district
10 their -- district their FRI data on a machine-readable
11 format was to aid that process.

12 Q. Could I just refer you to - so I can
13 confirm my understanding of your testimony - Exhibit 7,
14 the Timber Management Planning Manual, Page 196.

15 The last sentence under Item 4.1 is a
16 reference to operational surveys. I presume we are
17 talking about operational cruise surveys?

18 A. Yes, I would imagine so.

19 Q. The last sentence reads:

20 "Detailed survey instructions and survey
21 data need not be submitted but must be
22 available for reference."

23 Now, there you are speaking to a company
24 or to an FMA holder; is that right, or it includes an
25 FMA holder?

1 A. Yes, I would imagine it includes an
2 FMA holder. Yes, this is headed -- this section is
3 headed on page 193 Appendix C Additional FMA Ground
4 Rules, so this is a piece that has been lifted from the
5 forest management agreement.

6 Q. When you say, need not be submitted,
7 who need such information not be submitted to?

8 A. I am assuming MNR, but if you are
9 asking who within MNR --

10 Q. Yes, within MNR.

11 A. Okay. I would imagine, much as I
12 answered in the 70s that the actual reams and reams and
13 reams of computer printout that will come out of an
14 operational cruise processing, need not be sent to the
15 district, although they should be available for
16 reference.

17 What the district is probably concerned -
18 as again we were in the 70s - literally what were the
19 results of that operational cruise process. So the
20 computer printout, per se - which will be rather
21 voluminous - wasn't necessary to be shunted to and
22 from, but the stand-by-stand result and/or summary of
23 that I would imagine is what is being referred to on
24 page 196.

25 Q. Can you advise the Board where

1 companies are doing the operational cruise, how many
2 hectare are cruised by the companies on an annual
3 basis?

4 A. I don't know.

5 Q. Is that information available within
6 the Ministry?

7 A. No, but I go back to Exhibit 127
8 essentially Question (ii) -- it is not exactly the
9 Question (ii) on 127 I realize, but it is the same
10 meaning.

11 Q. When you say 127, you mean Exhibit
12 127?

13 A. Exhibit 127, Question (ii), that sort
14 of information is available from the companies and
15 that's where exactly, if one were asked, you would go
16 and get it, that's all.

17 Q. I am a little confused about the fact
18 that the information can be made available to the
19 district on a summary basis, but isn't in fact required
20 to be submitted to the district on a summary basis,
21 thus that you couldn't have produced a different type
22 of Document 33 which would have included information
23 with respect to how much is actually -- how many OPC is
24 work done by the companies as well as MNR?

25 A. Page 196 of Exhibit 7 says the

1 detailed survey instructions and survey data need not
2 be submitted, but must be available for reference, made
3 no comment as to summaries. In fact if you go
4 through --

5 Q. Sorry. So your testimony is
6 summaries are available and made available on a
7 systematic basis?

8 A. No, I didn't say that either. What I
9 said is that your comment that summaries are not
10 available is not what was stated on page 196.

11 In fact, if you go into the timber
12 management plan - and I don't know the relevant table -
13 I have no doubt you will find a table of allocated
14 stands and that will be a summary and the data that go
15 into that summary will come from one of two sources
16 and/or a mix of those two sources which speaks to the
17 rest of the questions you have got in Exhibit 127.

18 Q. But would you not agree with me that
19 if the information was readily available to the
20 Ministry, the Ministry would have produced a different
21 Document 33. Document 33 is page 231 of your evidence,
22 the table of OPC work done between 1983 and 1987, of
23 Exhibit 73?

24 A. No. Okay. The exhibits that were
25 shown as regards the amount of FRI work and the amount

1 of OPC work was to point out primarily the different
2 costs between operational cruise and FRI. That was the
3 reason for those set of tables.

4 Q. Page 231 is not about costs, it is
5 about hectares in square -- thousands of square
6 kilometres cruised between 1983 and 1987.

7 A. Pages 229, 230, 231, and 232 are
8 areas and costs of FRI and OPC as done by the Crown
9 over the last five-year period.

10 Q. That's right?

11 A. Background data giving rise to page
12 233 which portrays the average FRI costs and the
13 average OPC costs per square mile, to compare those two
14 as evidenced by work done by the Crown to give the
15 Board an impression of the relative costs between
16 operational cruise and FRI.

17 I could have just put in page 233 but in
18 essence we put in the background data leading up to
19 that in pages 230 to 232.

20 233 was the key table demonstrating that
21 operational cruise is a lot more expensive than FRI as
22 evidenced by the costs of the Crown.

23 Q. Dr. Osborn, you are misapprehending
24 my question. I am talking about hectares surveyed
25 under an OPC. Isn't that what page 231 is about?

1 A. Yes.

2 Q. And you have already advised not only
3 myself but Mr. Tuer last week, that in fact that table
4 is only with respect to the number of hectares cruised
5 by the Ministry of Natural Resources; is that right?

6 A. Correct.

7 Q. So my question earlier was: If the
8 information with respect to areas cruised by the
9 companies was systematically available to the Ministry,
10 then you would have been able to produce a different
11 page 231 which would have been OPC work done between
12 1983 through to 1987 for both areas cruised by the
13 Ministry and areas cruised by the industry; is that
14 correct?

15 A. Yes, but to what end because the cost
16 data from the company may or may not have been done in
17 the same form and format as that of the Crown.

18 The data shown in 231 was a means to an
19 end, the end being the comparison of costs. I could
20 have shown - as you so indicate - the area done by the
21 company, but 231 wasn't to show what was the total area
22 done as an end in itself, but merely a piece of the
23 story of what the relative costs are.

24 Q. Do you not think it is important to
25 know total areas cruised by Ministry and companies, OPC

1 we are talking about?

2 We are talking total area cruised?

3 A. I understand your question and I have
4 to hesitate before I answer, because I am trying to
5 think to what end is that a useful piece of
6 information. Unit by unit, yes, but total for the
7 province, I am not quite sure what it does to anybody.

8 Q. Well, the problem I am having with
9 your testimony is that it is not available at the
10 provincial level and you say it's available at the
11 district level, but if I were to be brazen enough to
12 ask for a further undertaking, I am sure my friend Mr.
13 Freidin would get up and say to what end, and then of
14 course I would have to describe to what end.

15 But the point is: Have you ever produced
16 this information on a systematic basis and your
17 testimony seems to be no; is that correct?

18 A. Correct, I have not produced that on
19 a systematic basis.

20 MR. CASTRILLI: I will not yet ask for
21 such information until I am through with this part of
22 the cross-examination, Mr. Chairman.

23 THE CHAIRMAN: Very well.

24 MR. CASTRILLI: Q. If I understand your
25 testimony then, to this point in time districts will

1 have summary data on an annual basis for total areas
2 cruised by companies on a management unit by management
3 unit basis?

4 DR. OSBORN: A. Yes, as far as I
5 understand.

6 Q. And in what form does the summary
7 come?

8 A. I do not know.

9 Q. Can you take under advisement to
10 advise the Board what form it comes to the district
11 level?

12 A. Yes.

13 Q. Thank you.

14 MR. CASTRILLI: Mr. Chairman, one
15 moment's indulgence.

16 Q. Now, at paragraph 61 of your
17 evidence, Dr. Osborn, page 33, you note that
18 operational cruises are much more costly than the
19 regular FRI and I believe that has been the general
20 tenure of your testimony; is that right?

21 DR. OSBORN: A. Yes.

22 Q. And would you agree with me that in
23 1987 we saw the lowest amount of OPC work done for the
24 five-year period ending in 1987?

25 A. That is the observation on page 232.

1 Q. 231.

2 A. Thank you, 231.

3 Q. And would you agree with me that Dr.
4 Rosehart concluded that the FRI must be supplemented by
5 more detailed surveys, in particular operational
6 cruises, to meet the needs of providing data for use at
7 the operating level?

8 It is the Summary page, paragraph 2, on
9 the left-hand column. It is the page before
10 Introduction.

11 A. Yes, but I am looking through the
12 text because I want to see the words that go with the
13 recommendation, please.

14 Q. Well, what I just read to you was
15 from that page.

16 A. That was the summary recommendation.
17 I am looking for the environment in which the
18 recommendation was made.

19 MR. FREIDIN: Which recommendation are we
20 looking at?

21 MR. CASTRILLI: Well, I am looking at the
22 page called Summary of Findings and Recommendations.

23 MR. FREIDIN: But what recommendation?

24 MR. CASTRILLI: If it has a number, it
25 might be No. 2. On the Summary page it doesn't have a

1 number, but it is the second paragraph.

2 DR. OSBORN: The recommendation is -- the
3 comment in the Summary and the Finding is quite valid.

4 MR. CASTRILLI: Q. So you agree?

5 DR. OSBORN: A. I agree that in certain
6 circumstances operational cruise is the most sensible
7 way of adding that additional information. You should
8 also remember the comment Dr. Baskerville made on the
9 same subject.

10 Q. You will have an opportunity to deal
11 with that in re-examination.

12 Mr. Armson, you recommended that the
13 operational cruise be further developed specifically
14 for stated forest regions; is that correct?

15 MR. ARMSON: A. I believe that is
16 correct.

17 Q. And we would find that in the Panel 2
18 evidence at page 163, your Recommendation 5.2? Just
19 accept that subject to verification.

20 A. That is correct.

21 Q. Can you advise the Board as to
22 whether this was done by the Ministry?

23 A. Not immediately, but one of the
24 areas, and I noted this in my report - that would be on
25 page 162, I believe, and over to 163 which precedes the

1 recommendation - that the Great Lakes/St. Lawrence
2 forest region was one of the areas where I felt that
3 there was a greater need than perhaps even in the
4 boreal region for operational cruising.

5 And, as has been noted by Dr. Osborn,
6 there has been a major increase in operational cruising
7 in the Algonquin region, which is a major region --
8 administrative region in that forest region.

9 Q. So your testimony is, based on page
10 162 and 163, that operational cruise was more
11 appropriate in the Great Lakes/St. Lawrence than the
12 boreal?

13 A. No. It was particularly appropriate
14 to have operational cruising in that area because of
15 the nature of the forest and the nature of the forest
16 products that were coming from that region.

17 Q. But it is also appropriate for the
18 boreal; is that correct?

19 A. Yes, but I would also point out there
20 are other sources of information and in very uniform
21 forest regions it may not -- you may serve those
22 purposes without formal operational cruises.

23 Q. What would those ways be, Mr. Armson?

24 A. Well, for example, in the boreal
25 there are portions of the boreal forest region where

1 the forest itself and the nature of the species - and I
2 speak here particularly of the clay belt and black
3 spruce stands - where there are very extensive stands
4 of black spruce on essentially relatively uniform
5 conditions, similarly with jack pine in certain
6 situations, where I believe foresters over the years,
7 in terms of experience from both the formal inventory
8 and prior operational cruises that may have occurred
9 over the years, have gained a wealth of information,
10 quantifiable information and may apply that in lieu of
11 current intensive operational cruises.

12 You see that the judgment of the forester
13 in the light of their experience and also existing
14 quantifiable information is equally important.

15 Q. What would the existing information
16 be if it is not an OPC?

17 A. Well, the information would be
18 inventory data that the company -- some of those
19 companies have been operating...

20 MR. CASTRILLI: It seems to be my
21 microphone.

22 MR. CHAIRMAN: I take it there is not a
23 sound person with the hotel around, for a change.

24 MR. MANDER: I think you just turned the
25 volume on a bit high.

1 THE CHAIRMAN: Is yours on now?

2 MR. MANDER: I just turned it down.

3 MR. CASTRILLI: Let's try it.

4 Thank you, Mr. Mander.

5 Q. Sorry, do you want me to repeat the
6 question?

7 MR. ARMSON: A. Yes. There are a number
8 of companies, quite a few companies that have been
9 operating in the boreal forest region for -- well,
10 since the 1920s, and over the period of decades they
11 have gathered considerable bodies of information on the
12 forest, on the amount of wood that they were able to
13 harvest from different kinds of forest there.

14 They also have, in many instances,
15 conducted operational cruises of various kinds over the
16 years and, as a result, have built a large body of
17 information which they use then in relation to their
18 estimating and making decisions concerning allocations.

19 And I believe that in many of those
20 instances where they have that kind of information,
21 they would probably judge it not warranted in terms of
22 expense to do annual or regular operational cruises on
23 areas for which they believe they have adequate
24 estimates or records.

25 Q. Now, when you speak of forester --

1 foresters, I presume at one level you are speaking of
2 unit foresters within the MNR?

3 A. No, in this case I was speaking --
4 your question was in relation to companies and I am
5 speaking of the companies and the foresters employed by
6 those companies.

7 Q. So we are back to the data that Dr.
8 Osborn and I were referring to earlier; is that right?

9 A. Yes, and I am going back to the data
10 that those companies have accumulated over a period of
11 some 60 odd years, long before the Ministry was ever
12 involved in accumulating data on forest conditions.

13 Q. Right. But we are also back to the
14 problem that if the companies are doing the cruising,
15 it seems that only the companies know the true yield of
16 the forest because it is they and not the MNR who are
17 doing the cruising in the area, and it is they and not
18 the MNR who seem to retain the data.

19 They are certainly not reporting on the
20 data that the companies are cruising.

21 A. I would let Dr. Osborn address this
22 question.

23 DR. OSBORN: A. The true yield of the
24 forest is that which is coming off the scaling returns
25 and that is known by company and Crown.

1 Q. Is it your testimony that scaling
2 returns are an adequate substitute?

3 A. I made the statement that the scaling
4 returns represent what is coming off the forest which
5 is known by company and Crown.

6 Q. Well, the scaling returns in the
7 annual reports are produced on an aggregate provincial
8 basis; are they not, they are not produced on a
9 management unit by management unit basis?

10 A. The data for the scaling returns on
11 which they are based are done by cutting approval by
12 cutting approval.

13 Q. So is that reported in the annual
14 report -- excuse me, in the statistics reports?

15 A. No.

16 Q. Thank you. Can you advise the Board,
17 if you know, what the projected -- sorry, if we were to
18 extend Document 33 which is a reference to OPC work
19 done for the period 1983 to 1987, if we were to extend
20 that table one bar to 1988, what the projected level
21 would be?

22 A. Without looking at annual the work
23 schedule for every single one of the districts in MNR,
24 I couldn't tell you what the values would be projected.

25 Q. Can you confirm for me, Dr. Osborn,

1 that it is normally expected that there will be an
2 operational cruise to fine tune the FRI to local
3 conditions?

4 A. It is not expected everywhere. It
5 is, as was described, one of the several sources of
6 information that may be used to supplement the forest
7 resource inventory data when deemed necessary.

8 So that the operational cruise is one of
9 several, and where it has been decided that is the way
10 of doing business, then the operational cruise is
11 planned with a particular objective in mind.

12 So given that all units are not the same
13 and given that the actual objectives for that term of
14 the planning period may vary to a certain extent on
15 what the kind of products are, an operational cruise is
16 therefore not a necessity, per se.

17 Q. Could you confirm for me that the
18 cruise is to be carried out in the implementation of
19 management and used to revise the FRI files so that
20 they better reflect, or better represent local
21 conditions?

22 A. In terms of timing, the operational
23 cruise may be done in a variety of times. It may be
24 done before the plan - this depends on variety of
25 circumstances - it may be done in the course of doing

1 the plan. So in terms of timing, the actual timing of
2 the OPC will vary for a variety of circumstances.

3 Now, in terms of its usefulness and what
4 its use is put to, as was explained, it has certain
5 objectives. Typically that is to provide a more
6 reliable, more precise, and we described what precise
7 meant, volumetric estimate for a certain small part of
8 the management unit.

9 It also was a way of looking at providing
10 data which do not exist in the FRI, and that was
11 explained.

12 Q. Well, would you agree with me that if
13 fine tuning of the FRI is not done, then the
14 application of the FRI in the implementation of
15 management can be expected to give mediocre results?

16 A. It depends on the location, depends
17 upon the -- literally how good the FRI is for the
18 objectives of management, it depends upon the products
19 being looked for in that particular planning period in
20 that location.

21 As we described before, within any area
22 you have to look at what are the objectives of
23 management, what is the type of forest, what is the
24 past history, what are the kinds or products being
25 looked at, the past track record of the FRI, all of

1 those facets and others must be looked at in light of:
2 Do I or do I not need supplementary information, and
3 out of the list of techniques available, do I or do I
4 not do operational cruising.

5 It is one of several possibilities for
6 collecting additional information on a small subset
7 area of the entire management unit.

8 Q. Wasn't what I just indicated a
9 concern of Dean Baskerville?

10 A. Yes, in some circumstances that is
11 certainly a concern of Dean Baskerville.

12 Q. I refer you to page -- Exhibit 16,
13 page 42, the first paragraph on the page.

14 You will see there, Dr. Osborn, Dean
15 Baskerville indicates that:

16 "It is expected and stated in the
17 manuals..."

18 I presume, by the way, he is referring to
19 the Timber Management Planning Manual?

20 Dr. Osborn?

21 A. Yes, I hesitate because I am not sure
22 whether your assumption is valid or not. I would
23 presuppose that you are probably right in that
24 assumption.

25 Q. Thank you. It goes on to say that:

1 "...there will be an operational cruise
2 to fine tune the FRI to local conditions.
3 This cruise is to be carried out in the
4 implementation of management and used to
5 revise the FRI files so that they better
6 represent local conditions. If such fine
7 tuning of the FRI has not been done,
8 application of FRI in the implementation
9 of management can be expected to give
10 mediocre results."

11 Now, those are Dr. -- or Dean
12 Baskerville's conclusions not mine and so it seems to
13 me, and he doesn't -- I would note, he does not place
14 the qualifier that you placed in your testimony.

15 He says it is expected, it should be
16 done, if it is not done it is going to result in
17 mediocre results. What do you say to that?

18 A. I turn to page 41 of the same
19 exhibit, and on page 41, the second full paragraph --
20 it is on page 41 in the second full paragraph, it
21 starts: "Although application of...", there is a
22 statement there that says:

23 "Acquisition of better stand-specific
24 data could be more costly than the small
25 gained accuracy of the averages that are

1 used in forest level planning would be
2 worth."

3 So Dr. Baskerville himself recognizes
4 that in some circumstances the getting of more precise
5 results, which operational cruise should provide, the
6 obtaining of those results may well be more expensive
7 than the additional precision is worth.

8 So Dr. Baskerville himself recognizes
9 that in doing an operational cruise, per se,
10 across-the-board may provide the more precise estimate,
11 true, but at a cost that may or may not be worth the
12 additional benefit gained, and he himself so states
13 that on page 41.

14 Q. He also says, if you will note in the
15 middle of that paragraph, that one would, for
16 example -- he notes, for example:

17 "It would help to have the
18 photointerpretation done as locally as
19 possible in order to take advantage of
20 the experience of the unit forester."

21 How often do unit foresters change jobs
22 so that we lose the value of the experience they may
23 have had on a particular management unit; do you know?

24 A. No, I don't know this point in time,
25 but it is also the technicians and all the other staff

1 of the district and/or the staff of the company - and
2 company staff certainly do not change as frequently as
3 Ministry staff does - and so we will send our
4 photointerpreters out, as we described, to the field to
5 do the photointerpretation with the local staff. And I
6 described at some length that was done.

7 Q. Well, Dr. -- Dean Baskerville
8 indicates again in the last sentence in the paragraph
9 you quote, that:

10 "The process should be operated more
11 closely to the unit forester."

12 Now, I again ask you, if you do not know
13 whether unit foresters are changing jobs frequently and
14 changing management units frequently, are we not in
15 fact losing the benefit of whatever experience they
16 might have on a stand-by-stand basis if, in fact, they
17 are not on a particular unit very long?

18 A. Yes, the unit foresters, but I will
19 also add that it is the technicians as well as the unit
20 foresters who are intimately familiar with the working
21 operations on the unit.

22 So whatever staff that is there that has
23 some familiarity with the sort of operations and the
24 sort of forest conditions that is used, and it is that
25 sort of staff's expertise that is seriously

1 investigated by the local photointerpreter.

2 Q. And Dean Baskerville just refers to
3 unit foresters though, would you agree, not to other
4 technicians?

5 A. That is what he is alluding to, yes.

6 Q. Now, if I can continue with Exhibit 7
7 just to follow up on Dean Baskerville's reference to
8 manuals. I ask you to turn to pages 89 and 90 of
9 Exhibit 7 -- sorry, it was the wrong page reference. I
10 will have to come back to that.

11 Let's move on then. If I can summarize
12 your answers to our interrogatories, you don't know
13 what percentage of areas allocated for cutting are
14 operationally cruised; is that correct?

15 A. I personally do not know.

16 Q. Well, I am not only now interested in
17 your personal knowledge, does the Ministry know?

18 A. The Ministry could find out. As I
19 indicated in the answer to this question, the
20 information exists from the companies that we could go
21 and find out the area actually cruised by the
22 companies.

23 Q. But it is not something readily
24 available to the Ministry; is it, unless they respond
25 to another undertaking?

1 A. That is correct. As far as I know, I
2 do not know currently what is kept at the district
3 office and you asked me to find out the form and format
4 of those data.

5 THE CHAIRMAN: What is the purpose of
6 knowing?

7 MR. CASTRILLI: Well, I think we are into
8 the question of how does the Ministry know whether it
9 is applying or conducting or successful in achieving
10 sustained yield management.

11 We are talking about knowing the volume
12 in the forest, and when we have an inability to confirm
13 exactly what the volume is, if we are not doing an
14 appropriate level of fine tuning through the OPC, then
15 the answer is they don't -- the Ministry doesn't know
16 what the volume of the forest is.

17 And, therefore, it is very difficult to,
18 in my opinion and the opinion of my experts - which we
19 will hear in two years from now - as to what in fact is
20 the situation on a management unit by management unit
21 basis with respect to the issue of sustained yield.

22 So I am not going to ask for the
23 information, Mr. Chairman, by the way, but it has been
24 confirmed by this witness that it could only be
25 achieved by responding to an undertaking, presumably on

1 the basis that it is the first time somebody ever asked
2 in a situation where they might actually be able to get
3 the information.

4 So, no, I am not going to ask for the
5 undertaking.

6 Q. Secondly, you do not know what
7 proportion of allocated stands is information available
8 from FRI data only without OPC; is that correct?

9 DR. OSBORN: A. Correct.

10 Q. Or on what proportion of allocated
11 stands is a correction factor applied to the FRI; is
12 that correct?

13 A. That is what is stated in the answer
14 to the interrogatory.

15 Q. Thank you. Now, on page 231 of
16 Document 33, you indicate the amount of OPC work that
17 was done between the period 1983 to 1987 but not the
18 amount of operational cruising that should have been
19 done; is that correct, and nowhere is that indicated in
20 your evidence?

21 A. Mr. Castrilli, that information on
22 page 231, as I explained, was used to demonstrate how
23 much area of OPC was done versus how much FRI was done
24 and the respective costs of the two techniques.

25 Q. 231 is not about costs, 231 is about

1 total hectares; is that right?

2 A. Yes.

3 Q. So we are talking about how many
4 hectares, and nowhere in your evidence do you indicate
5 how much OPC work should be done on an annual basis; is
6 that correct?

7 A. Correct.

8 Q. Thank you. Now, just looking at the
9 period 1985-86 on that page, page 231, the figure is in
10 areas -- an area by thousands of square kilometres. If
11 I just looked at the 1985 block and the 1986 block and
12 we were to convert that to hectares, would you agree
13 with me that we are looking roughly at approximately a
14 range of between about 60,000 hectares to approximately
15 120,000 hectares?

16 THE CHAIRMAN: That is in kilometres; is
17 it not?

18 MR. CASTRILLI: Yes, I know, I am asking
19 Dr. Osborn to do the calculation, I can simply on the
20 record indicate what the calculation should be, but I
21 think Dr. Osborn can do it.

22 DR. OSBORN: I hope you realize on page
23 231 it is the top of the white trapezoid on top of the
24 bar that represents the value.

25 MR. CASTRILLI: Q. Yes. In other words,

1 it is the white bar and not where the slash-marked bar
2 is.

3 I will accept your numbers as to what you
4 estimate. I have given a range of approximately 60 to
5 120, but I will accept whatever number you give.

6 A. Well, the first figure is eight not
7 six.

8 Q. Okay. So it is 80, 80,000?

9 A. .8-thousand square kilometres.

10 Q. Okay, so that would be approximately
11 80,000 kilometres. No, your answer is--

12 A. Hectares.

13 Q. --in hectares; is that correct?

14 A. Yes.

15 Q. Okay. And what would it be for -- I
16 the figure I eyeballed this is at about 120 for 1986?

17 A. Yes. Yes, 120. I follow your
18 eyeball.

19 Q. Thank you. And this is Crown land
20 only?

21 A. Yes.

22 Q. I wonder if I might now ask you to
23 take a look at the 1986 statistics, one page.

24 MR. CASTRILLI: Mr. Chairman, I ask this
25 be made the next exhibit.

1 THE CHAIRMAN: Exhibit 128.

2 ---EXHIBIT NO. 128: One-page excerpt from
3 Statistics 1986.

4 MR. CASTRILLI: Mr. Chairman, I guess I
5 should read just one page from this 1986 Statistics,
6 being page 17.

7 Q. Dr. Osborn, looking at what is now
8 Exhibit 128, on page 17, the heading of the page is
9 Silviculture Operations for the period 1985-86 and it
10 is a classification of cutover forest land area in
11 hectares.

12 If we look at the third column, total
13 Crown lands, and actually there are two sub-columns,
14 Harvest Cut, evenaged management, and Harvest Cut,
15 unevenaged management. If you look at the third column
16 down under the heading Total you see a figure of
17 190,306, I presume that is hectares.

18 Is it reasonable to compare those
19 statistics with the figures in your page 231 to get
20 some idea of how much was cut versus how much was
21 operationally cruised?

22 Would that be a fair comparison?

23 A. No.

24 Q. What would be wrong with the
25 comparison?

1 A. We have pointed out that the areas
2 cruised by the companies were not included in the data
3 on page 231. We pointed out that the areas occupied by
4 the FMAs at this point in time is a large percentage of
5 the province.

6 So the figures on page 231 only represent
7 the work undertaken by the Crown, not the areas
8 undertaken in total. So the comparison that you just
9 raised is not valid.

10 Q. Do we know -- I believe we have
11 already been told by you that we don't know what was
12 cruised by the companies in any year?

13 A. Correct.

14 Q. Thank you. So we are left to guess
15 as to what the relationship could be; is that correct,
16 the Board is left to guess?

17 A. If the Board want to make that
18 comparison between the figures on page 231 and the
19 values on Exhibit--

20 Q. 128.

21 A. --128, as I so stated, they are not a
22 valid comparison.

23 THE CHAIRMAN: Dr. Osborn, could somebody
24 go to an operational management unit and get the
25 figures from the management unit as to what was cut in

1 that unit and the amounts operationally cruised in that
2 unit by both the companies and the Crown?

3 DR. OSBORN: I believe so, sir, yes.

4 THE CHAIRMAN: On a unit-by-unit basis?

5 DR. OSBORN: On a unit-by-unit basis.

6 THE CHAIRMAN: And all you are saying is
7 on a statistical basis that information is not
8 available province-wide?

9 DR. OSBORN: It has never been summed for
10 the province as a whole.

11 THE CHAIRMAN: Okay.

12 MR. CASTRILLI: Q. You would agree,
13 however, since we don't know what the company numbers
14 are or could be, but just looking at page 17 of Exhibit
15 128 and page 231 of Exhibit 78, there is a substantial
16 difference?

17 DR. OSBORN: A. As explained by Mr.
18 Armson just a brief moment ago, the intolerant -- the
19 tolerant hardwood areas very typically are very
20 intensively cruised.

21 So out of your 190,000 the 14,000 that is
22 harvest cut on evenaged management could have been 100
23 per cent cruised, we don't know at this point in time
24 with the breakdown of the numbers, I didn't show that
25 in 231.

1 The other point that was raised was in
2 the boreal where the stands, in some cases, are very
3 even, that the operational cruise may or may not be a
4 warranted necessity.

5 So as was inferred before, there isn't a
6 necessity to operational cruise all of the areas
7 allocated for cutting.

8 Q. Who makes the allocation, Toronto or
9 the unit forester?

10 A. Between that choice, the unit
11 forester. I would hesitate, it is somewhere in the
12 district. It is the management planning team that will
13 be - without being funny - described in Panel 15 of who
14 actually is in that team for the execution of a Timber
15 Management Planning Manual actual plan.

16 But the unit forester in the choice you
17 gave me.

18 Q. Can you just advise me, when one does
19 an operational cruise, isn't that in anticipation of
20 cutting?

21 A. Yes. Given it is so expensive, one
22 would certainly want to make very, very sure you were
23 spending that large amount of money in doing that
24 estimate on an area that in fact is going to be cut.

25 Now, given all of that, there are

1 certainly instances where the cruise has been done and,
2 for a variety of circumstances, the area has not
3 necessarily been cut in that planning period.

4 So, yes, ideally you go and cruise in the
5 area that you think is going to be cut. There is a
6 whole host of circumstances may arise whereby that is
7 not exactly echoed.

8 Q. So the data from an operational
9 cruise where the stand or the unit where that part of
10 the unit has been cut, of course, will no longer be
11 helpful; isn't that right, because the trees are gone?

12 A. Okay, not entirely. Yes, for that
13 particular stand, but recognize we said earlier, what
14 are the other sources of information that may in fact
15 be available at the district level to help in operating
16 the FRI.

17 And one of them was previous comparisons,
18 stand-by-stand between what is in the FRI and what was
19 in the operational cruise and, again, local field
20 knowledge of what actually was realized, what actually
21 was cut and harvested from that area.

22 So even though that stand has been cut,
23 those data which reside in the district office still
24 have some potential value in helping the FRI for an
25 area that hasn't yet been cut. It is one of the extra

1 pieces of information that we alluded to earlier.

2 Q. I believe you testified in-chief and
3 included in your evidence a number of FRI tally sheets
4 and instructions. Can you confirm for me that there
5 are also directives for doing operational cruising and
6 there are also cruise tally sheets?

7 A. Okay. The second statement, yes,
8 definitely, and in fact we provided you with copies of
9 what they look like. Now, the first comment in terms
10 of directives, I am not sure exactly how you are using
11 the word, that's all.

12 Q. Guidelines?

13 A. There are guidelines, there is an
14 explanation of how to fill in the operational cruise
15 tally sheet, yes.

16 Q. Is that in your material?

17 A. We gave you a copy of the output in
18 the answer to an interrogatory.

19 Q. No, no, what you gave me was a
20 cruise -- you gave me a cruise tally sheet result, you
21 didn't give me the guidelines. Since I didn't know
22 about them I didn't ask for them. I didn't learn about
23 them until your evidence.

24 I think there are procedural guidelines
25 on conducting them and that's what I gathered...

1 A. There is an Operational Survey,
2 Instructions for Recording Procedures that essentially
3 is: How do I complete the tally sheet which ends up
4 with an output report. That is what you specifically
5 asked for was, what was the kind of data that actually
6 got presented as an output.

7 Q. Could I just simply ask you at a
8 convenient time to provide me with a copy of the...

9 A. They are called the Instructions for
10 Recording Procedures. Operational Survey is the
11 heading, Instructions for Recording Procedures.

12 Q. Do I have that undertaking?

13 A. Yes, sir, I can certainly photocopy
14 that.

15 Q. Thank you. Now, also in your
16 testimony on June 30th in reference to your Exhibit 96,
17 which I believe was one of your drawings, this is a
18 drawing of a tree volume table. Are there in fact tree
19 volume tables--

20 A. Yes.

21 Q. --produced by the Ministry?

22 A. Yes.

23 Q. Are they extensive?

24 A. Yes.

25 Q. How extensive?

1 A. Oh...

2 Q. Are they produceable, put it that
3 way?

4 A. I am trying to think how many pages,
5 and the answer is something in the order of 30, so...

6 Q. Could I ask for a copy of that as
7 well?

8 MR. FREIDIN: Yes.

9 MR. CASTRILLI: Thank you.

10 Q. Now, in relation to your exhibit --
11 this is again on your testimony of June 30th, and you
12 were testifying respecting Exhibit 97 which was a
13 drawing of the N equation, I will call it and I believe
14 you know what I am referring to?

15 DR. OSBORN: A. Yes.

16 Q. The number of the plots equation--

17 A. Yes.

18 Q. --for doing an OPC. Can you confirm
19 for me that your choice of 40 for the co-efficient of
20 variation in that equation was based on an average;
21 that is, average tree volume?

22 A. No, not average tree volume.

23 Q. Can you advise the Board what it was
24 based on?

25 A. The average volume per hectare, it is

1 a stand value.

2 Q. Was it based on any particular tree,
3 species or working group?

4 A. It was an overall average -- as I
5 described, an overall average for the province as a
6 whole; a value that described the overall variability
7 of the volume per hectare as an overall provincial
8 average.

9 Q. Can you advise the Board, would the
10 co-efficient of variation normally be done or chosen on
11 the basis -- based on the species or working group you
12 would be sampling?

13 A. Yes.

14 Q. Can you advise the Board what the --

15 A. Based on the population, whatever
16 that population was, as I described.

17 Q. Can you advise the Board what the
18 average co-efficient of variation for jack pine working
19 group would be?

20 A. No, I can't. But I did talk to Dr.
21 Mervart and when I was looking at this number as to
22 what the range in that number might be, and he gave me
23 to believe that plantation type values, which typically
24 will be less variable than natural stands, went down as
25 low as 35 per cent, and that many of the mixed wood

1 stands in the province, mixed species, mixed working
2 groups - mixed species in terms of spruce and
3 intolerant hardwoods - typically went up to 65 per
4 cent, because I was very interested in how low a value
5 could you get even with plantations. And the value
6 that we went down as far as was 35 per cent, which
7 rather surprised me on a personal basis.

8 So I can't tell you, because I do not
9 know, for jack pine per se working group, what the
10 actual co-efficient of variation on the province is.
11 But the inference I got was that lower-most values for
12 plantations, which are pure species, was down at 35 per
13 cent.

14 Q. So in the equation, 35 per cent would
15 translate to 35?

16 A. Yes, that's correct.

17 Q. Can you tell me generally, would the
18 co-efficient of variation be lower for softwoods such
19 as black spruce and jack pine and higher for hardwoods?
20 I believe you indicated 65 per cent was in relation
21 to...

22 A. Mixed wood stands.

23 Q. Mixed wood stands.

24 A. Where you have got a mixture of, say,
25 balsam spruce and aspen and birch, you have got a stand

1 that is a mixture of species.

2 In answer to your question, no, aspen may
3 in fact have a lower co-efficient of variation than the
4 two softwoods. It depends on so many other factors.

5 Q. So it is not generally true that for
6 softwoods it is lower and for hardwoods it is higher?

7 A. I really wouldn't want to make a
8 comment on that. There are so many causes of
9 variability.

10 Q. Now, again in your testimony of June
11 29th, you also stated that the OPC is less and less
12 necessary because some of the data now comes from the
13 field and from certain surveys that can replace OPC,
14 and two surveys you referred to were FLAP and FEC.

15 Do you recall that testimony?

16 A. Yes.

17 Q. Can you confirm for me that the FLAP
18 program consists of soil surveys in site conditions?

19 A. That's what is the underpinning of
20 FLAPS itself, yes.

21 Q. Would you agree with me that
22 therefore the FLAP program is not a substitute for OPC?

23 A. You asked me about an hour ago as to
24 whether or not operational cruising could be used for
25 silvicultural prescriptions. And in relation to that

1 particular objective of OPC, that particular objective
2 of OPC has now been partially, if not completely,
3 replaced with things like FLAPS and what was built upon
4 FLAPS, which was done in the northeastern region, and
5 FEC, forest ecological classification, a system that
6 has been used in the northern region, northcentral and
7 northwestern and also in Algonquin.

8 So within the area of the undertaking
9 both FEC and/or FLAPS and what was built upon FLAPS,
10 both those two systems provide information to aid the
11 forester in ascertaining how to cut and regenerate the
12 area, silvicultural prescriptions.

13 So for that single objective of the OPC,
14 those two alternative sets of systems provide an
15 alternate way of deciding or helping decide how
16 silviculture action should be taken.

17 Q. But we are talking about how to cut
18 trees?

19 A. No, we are talking about operational
20 cruise.

21 Q. That's right. We are talking about
22 operational cruise which is about how to count trees
23 better, out flat, it's good for that.

24 A. On page 33 of the testimony of the
25 evidence-in-chief, in paragraph 62. In paragraph 62

1 the statement has three objectives listed for OPC.

2 The first was to verify correct the FRI;
3 the second was to provide a more detailed estimate of
4 the volumes; and the third, in addition, OPC can
5 provide the basis for making silvicultural
6 prescriptions for subsequent activities. They are the
7 three stated objectives of OPC in the 1970s.

8 Since that time, the system of both FLAPS
9 and what was built upon FLAPS and FEC have in fact
10 provided an alternative set of procedures to aid in the
11 silvicultural prescription objective of OPC in the
12 1970s.

13 So with regards to OPC with those three
14 objectives, the last of three, the use of it in
15 silvicultural prescriptions has now been taken over by
16 those alternative two systems.

17 Q. Oaky. With respect to counting
18 trees, would you agree with me that FLAP and FEC, both
19 of which are soil surveys and related growth studies,
20 have no relationship to the issue of crowning trees
21 and, therefore, are not a substitute for the OPC in
22 terms of how the OPC fine tunes FRI?

23 A. Yes, I will agree with you.

24 Q. Thank you. Now, as I recall your
25 testimony, or also in answer to one of our

1 interrogatories which is now Exhibit 87, it was
2 Question (iii) from your paragraph -- referring to your
3 paragraph 41 also known now as Exhibit 87, you stated
4 that the number of FRI samples had been reduced over
5 the past years for a number of reasons including the
6 fact that field foresters now have better historical
7 records covering certain age-classes and you say, for
8 example, (from operational cruises).

9 You have also testified that the OPC
10 itself is less and less necessary and your chart on
11 page 231 confirms that you have been reducing - I say
12 you, I mean the MNR - has been reducing the OPC budget.
13 So that in 1987 it is at its lowest period for the last
14 five years.

15 How do you explain those two
16 circumstances?

17 A. They are not contradictory.

18 Q. They are not contradictory?

19 A. Foresters have gradually learned more
20 and more about what to expect from the forest. They
21 have built up some background expertise of what is out
22 there in the forest and what to expect from it. They
23 have learned what the relative conditions are that
24 cause the FRI to be checked and corrected for local
25 conditions from a variety of sources, one of which is

1 operational cruising.

2 As more and more of the area goes under
3 FMAs, as it has done over the last few years, the
4 greater amount of area that is under company
5 management, if you like.

6 Q. All this information was available to
7 Dr. -- to Dean Baskerville; was it not?

8 He came to the conclusion that in the
9 absence of doing FRI -- doing OPCs you were going to
10 get mediocre results in your FRI inventory.

11 Now, presumably he had an opportunity to
12 hear submissions such as yours in one format or another
13 and he doesn't seem to take account of that argument in
14 his final report. So would you agree with me that Dean
15 Baskerville and you disagree with respect to the issue
16 of the value of OPC and how systematic it should be
17 applied or not?

18 A. There are certainly areas for
19 discussion as to the exact circumstances unit-by-unit
20 as to what seems to be the most appropriate mix of data
21 collection procedures.

22 MR. CASTRILLI: Mr. Chairman, this would
23 be an appropriate place for a break.

24 THE CHAIRMAN: Very well. We will break
25 for 20 minutes.

1 Thank you.

2 ---Recess taken at 2:25 p.m.

3 ---Upon resuming at 2:48 p.m.

4 THE CHAIRMAN: Thank you. Be seated,
5 please.

6 MR. CASTRILLI: Thank you, Mr. Chairman.

7 Q. Dr. Osborn, I again refer you to
8 Exhibit 7, it is the Timber Management Planning Manual.
9 I earlier referred you to pages 89 and 90 and then
10 thought I had cited the wrong page, in fact those are
11 the right pages.

12 Can I ask you in particular to look at
13 page 90. Now, if you will recall, the context in which
14 I referred you to this was the reference from Dean
15 Baskerville's comments in Exhibit 16, page 42, where he
16 referred to manuals and the OPC.

17 You will note under Item 2 on page 90
18 there is a reference to volume, item source, there is
19 an arrow:

20 "Operational stand volumes by species
21 from the stand listings totalled by
22 licensee for the area of planned harvest
23 by licensee from Table 4.16."

24 Is that an example of the manual
25 referring to operational cruise information?

1 DR. OSBORN: A. I am trying to see the
2 word manual there at all. Under Item 2 it merely says:
3 "Operational stand volumes...", et cetera
4 as you so listed.

5 What manual are you alluding to?

6 Q. Well, sorry. What I am really
7 alluding to is what I believe you and I both assume
8 Dean Baskerville was referring to at page 42 of his --
9 what is now Exhibit 16. You will recall from that
10 exhibit, Dean Baskerville at the top of the page
11 indicated:

12 "It is expected and stated in the manuals
13 that there will be an operational cruise
14 to fine tune the FRI to local
15 conditions."

16 And all I have done now is simply
17 referred you to the Timber Management Planning Manual
18 and indicated an example at the back of Table 4.18.1 in
19 which it appears that the source for information with
20 respect to volumes will be an operational cruise.
21 Would you agree?

22 A. That's no inference on page 90 that
23 those data that are put into that table come from
24 operational cruises. There is no inference whatsoever.

25 Q. What does the phrase operational

1 stand volumes by species mean?

2 A. Exactly what it says. Stand volume
3 by species as required for operations.

4 Q. So your testimony is that is not a
5 reference, for example, to information derived from the
6 operational cruise?

7 A. Not necessarily.

8 Q. Not necessarily, well --

9 A. The data that are in this Table
10 4.18.1 may come from operational cruising, may
11 partially come from operational cruising or may come
12 from other sources of information. There is no
13 inference that I understand on page 90 that the data in
14 Table 4.18.1 come from and only from operational
15 cruises.

16 Q. Well, would you agree with me that
17 operational cruises are included in the Item 2?

18 A. They could be. As I said before, the
19 data could come from operational cruises.

20 Q. Fine, thank you. Now, you may
21 recall -- I recall in your testimony, I just wish you
22 to confirm this, that you indicated the average or
23 typical per cent sample of a stand on an OPC was one
24 per cent?

25 A. One to three.

1 Q. One to three per cent. And I believe
2 your testimony is also that the typical plot size for
3 on OPC is one-tenth of an acre?

4 A. It's something in that order, yes.

5 Q. And I believe your testimony has also
6 been that the typical stand size is 100 acres?

7 A. Typically.

8 Q. Would you agree with me that if the
9 per cent sample of a stand in those circumstances was
10 one per cent, that the number of sample plots on that
11 stand would be 10?

12 A. That's correct.

13 Q. And would you agree with me, taking
14 the other numbers that you used in your, I believe, it
15 was Exhibit 97, the equation - that those numbers were
16 again your No. 2 for the -- sorry, I forget what the
17 item was called, for T and for the co-efficient of
18 variation was 40, and using a number of sample plots as
19 being 10, would you agree with me that the per cent
20 sample error in that case would be 25.3 per cent?

21 Would you accept that subject to
22 verification?

23 A. I would like to see the arithmetic
24 calculation, please, and some understanding of the
25 background numbers --

1 Q. Sure. But let's just assume that you
2 have indicated -- let's assume the number was 10 for a
3 number of sample plots?

4 A. Okay.

5 Q. The constant was -- T was 2,
6 co-efficient of variation --

7 A. T wouldn't be 2 if the number of
8 samples was 10 and I explained that when I explained
9 the T table.

10 Q. What would T be?

11 A. 2.23 at 95 per cent probability.

12 Q. 2.23. All right. Co-efficient of
13 variation, we will assume also your number 40?

14 A. Okay.

15 Q. So that you would eventually have X
16 equals a square root of 640 - I have done that on the
17 basis of T being 2?

18 A. Would you like to write on the board,
19 please, the arithmetic you are going through.

20 Q. I am sorry, it would simply be --

21 THE CHAIRMAN: Just a moment. I take it,
22 Mr. Castrilli, you are trying to get an approximation?

23 MR. CASTRILLI: Yes, I am just asking for
24 an approximation of the sample error assuming those
25 numbers.

1 THE CHAIRMAN: Okay.

2 MR. CASTRILLI: Using the numbers that
3 Dr. Osborn used last week, but substituting number of
4 sample plots of 10 for 256.

5 THE CHAIRMAN: Well, Dr. Osborn, without
6 going through the actual mathematics, can we not just
7 have Mr. Castrilli put the question on the basis of
8 some kind of approximation and you giving the answer
9 qualifying it.

10 I am sure that you will have to verify
11 the exact mathematics.

12 DR. OSBORN: Yes, that wasn't --

13 MR. CASTRILLI: Q. Just for the sake of
14 argument, and subject to verification when you have on
15 opportunity, the figure I would get would be
16 approximately a 25 per cent sample error. If you would
17 just accept that subject to verification we can move
18 on.

19 And assuming that it was a 25 per cent
20 sample error, is it your testimony that on a typical
21 operational cruise the Ministry accepts a 25 per cent
22 sample error?

23 DR. OSBORN: A. Given all that you have
24 said is correct, that is the sample error that would be
25 for the average volume per hectare on a stand-by-stand

1 level. However, as was stated, in many instances the
2 operational cruise is done for an aggregate of stands
3 and the use of the data is for an aggregate of stands.

4 Q. Would the Ministry accept a 25 per
5 cent sample error? I mean, what is the range of sample
6 error the Ministry would accept?

7 A. There is no numerical limit that is
8 given to any unit forester as a guideline as to what is
9 the appropriate "correct" managerial error. There is
10 no tabular value that says thou shalt have an error
11 between X and Y.

12 THE CHAIRMAN: But is there a level
13 beyond which the Ministry would consider the data
14 useless or --

15 DR. OSBORN: I understand. Typically
16 what happens in planning is you sit and work out that
17 for a given level of error that you are prepared to
18 live with, how many sample plots do you require and you
19 work out the cost of same number of sample plots, and
20 then you work backwards, if you have only got a certain
21 sum of money, how many can I afford to pay for.

22 And this iteration will go on and you
23 will realize in many instances that you cannot afford
24 to do this on the single stand level and, hence, my
25 comment about you expand it.

1 So again, sir, even with your question,
2 there isn't a single value that says: Hey, at this
3 level it doesn't make sense. This becomes a practical
4 iteration of: At what level of geography and for what
5 level of sample, for what product am I concerned about.

6 THE CHAIRMAN: But if the desirable level
7 that you would like to obtain is 95 per cent -- if
8 somebody were to obtain 95 per cent, they would be
9 relatively satisfied that that data would provide a
10 useful purpose.

11 Now, if you are up to 25 per cent on a
12 typical stand, given the optimum conditions would may
13 be tend to put that range at the 95 per cent level,
14 what does that do to the data in the Ministry's eyes.

15 What is its appreciation of that data
16 given a range between 25 per cent and the 95 per cent?

17 DR. OSBORN: With due respect, sir, you
18 are confusing two --

19 THE CHAIRMAN: No, sorry, sorry. A range
20 between a 25 per cent margin of error and a 5 per cent
21 margin of error.

22 Sorry.

23 DR. OSBORN: Okay. With those two, I, as
24 a manager, would be rather perturbed about the
25 usefulness of a value that is plus or minus 25 per

1 cent. I would look at that and say: Fine, I have got
2 an increased precision, but it is not an awful lot
3 better than I would have expected if I had looked at
4 the area and presupposed I knew what was out there.

5 I would not be happy with plus or minus
6 25 per cent.

7 THE CHAIRMAN: Thank you.

8 MR. CASTRILLI: Q. Dr. Osborn, if the
9 figure was -- if you were cruising typically 2 per cent
10 of the stand and then keeping again all the numbers
11 constant we used before, would you agree with me
12 subject to verification that the per cent sample error
13 would be 12 per cent?

14 DR. OSBORN: A. If I understood you
15 correctly, first of all, you worked out the value that
16 was 25 per cent error?

17 Q. No, no, no. I am now going on to
18 another example using a different per cent stand
19 sample. The first one was with 10 per cent --

20 A. To get to 12.5 you must have
21 increased the per cent sample.

22 Q. What we have done is we have doubled
23 the number of sample plots to 20 from 10?

24 A. Okay.

25 Q. So 20 is the number now instead of

1 10.

2 A. Okay. It is not an arithmetic one
3 for one reduction, but go on.

4 Q. And assuming again that your T was 2
5 and assuming again your co-efficient of variation was
6 40, would you agree with me subject to verification
7 that the per cent sample error would be approximately
8 12 per cent?

9 A. As I say, subject to verification, I
10 understand where you are going.

11 Q. Now, you will recall from Dr.
12 Rosenart's Report, Exhibit 93, that he indicated that
13 values could differ between two foresters doing a
14 cruise of the same stand. Do you recall that part of
15 his report?

16 A. Yes.

17 Q. I believe it is at page 9 of Exhibit
18 93. If we look at the right-hand side of the page,
19 page 9, in the last three paragraphs on that page.

20 Generally speaking, Dr. Rosehart there is
21 indicating; is he not, that the values could differ
22 between two foresters doing a cruise of the same stand,
23 would you agree?

24 A. That's the whole explanation of why
25 there is a co-efficient of variation of 40 per cent.

1 Two samples taken in the same population will produce
2 two different answers. That's the whole background of
3 why there is a CV more than zero.

4 Q. Would you also agree with me though
5 that if you look at the middle paragraph on the
6 right-hand side of the page, page 9, that Dr. Rosehart
7 is also saying that foresters are the same but
8 typically five per cent error is what they would expect
9 with an OPC, and it is typically possible with an OPC?

10 A. No, what they have said is foresters
11 typically accept if they took two samples, the two
12 sample estimates may vary by five per cent.

13 It has nothing to do with the 5 per cent
14 error that you are talking about. It says: Their
15 values could differ by at least 5 per cent between the
16 two estimates the two foresters took.

17 Q. Let's assume that they simply
18 obtained a five per cent error--

19 A. Okay.

20 Q. --with a one per cent cruise. If
21 that was the number they were obtaining, five per cent
22 error with a one per cent cruise, would you not agree
23 with me that the co-efficient of variation would have
24 to be much smaller than 40?

25 A. Unless they took 256 samples, which

1 is what the arithmetic was that I presented a week ago.

2 Q. Right, but with one per cent cruise
3 they are not taking 256 samples, they are taking 10
4 samples.

5 A. We went through this explaining the
6 variables in the equation and you have that below an
7 error and that number of samples. The co-efficient of
8 variation is the only other thing that can change. So,
9 yes, it would have to be a lot smaller.

10 Q. Thank you. And if we went out to the
11 final range, which I believe you indicated is the
12 typical sample of the stands on an OPC which I believe
13 you said was three per cent, that would be
14 approximately 30 samples; would it not, 30 sample
15 plots, assuming a one-tenth plot size and a hundred
16 acres typical stand size?

17 A. To produce a five per cent error with
18 the co-efficient of variation of 40, if I remember
19 correctly --

20 Q. Keeping all the numbers the same as
21 we did before on the other two examples.

22 A. Well, could you tell me the error
23 level, please?

24 Q. Leaving aside the error level, I am
25 not dealing now with the error level, I am just dealing

1 with the fact that there could be up to 30 -- on a
2 three per cent sample, 30 sample plots, that is what
3 you would normally expect; is that correct?

4 A. As I said, there is no linear
5 relationship between the number of samples and the
6 error size. There isn't a linear relationship between
7 those two; they don't go hand in hand.

8 Q. Well, the difficulty I had with your
9 testimony - and perhaps you could help me clarify it -
10 is why you would have chosen 256 as your sample plot if
11 the range is normally to choose a one per cent, a two
12 per cent or a three per cent sample on a hundred acres
13 on one-tenth per acre plot size?

14 I mean, the range seems to be 10 to 30.

15 A. No, I didn't choose 256 samples, I
16 didn't choose it. If you remember correctly, I derived
17 it.

18 Q. That's right, on the basis of a
19 co-efficient of variation of 40?

20 A. Correct, and a desired error of plus
21 or minus five per cent. I wasn't -- the co-efficient
22 of variation is a given, it is a fact of life, it is
23 the amount that stands vary out there, unfortunately.

24 The error was a selection that we
25 managerially - and it is a we - managerially made. We

1 could have had five or we went through an example with
2 10. Now, I didn't choose 256 sample plots, I derived
3 as a result of that error with that co-efficient of
4 variation.

5 Q. Let me just suggest that to end up
6 with 256 sample plots means that some -- that seems to
7 me to be rather an extreme number of sample plots given
8 what the normal sampling is all about, the normal
9 sampling is one per cent.

10 THE CHAIRMAN: But Mr. Castrilli, you are
11 not getting a margin of error five per cent using the
12 normal number of plots.

13 MR. CASTRILLI: Well, the point, Mr.
14 Chairman, is that it seems unlikely that the Ministry
15 is accepting a 25 per cent sample per cent error, it
16 seems much more likely that they are accepting a five
17 per cent or a 10 per cent which means that they must --
18 the number in the equation that must have changed or
19 must not be 40, otherwise the numbers don't make sense.
20 The sample plot numbers don't make sense.

21 Between 10 sample plots and 256,
22 something in the equation has to change if you want a
23 five per cent error, and I suggest it has got to be the
24 co-efficient of variation.

25 DR. OSBORN: Mr. Chairman, I pursued this

1 at some length before this hearing on this particular
2 issue as to what the co-efficient of variation within
3 Ontario was, and the forest mensurationist in Timber
4 Sales Branch, I was given the figure of 40 per cent as
5 a typical provincial average.

6 I asked over what range of Ontario that
7 covered, and it covered work done in the extreme
8 northwest part of the province, in the northwestern
9 part of Kenora, Fort Francis, it covered work that was
10 done in the northcentral part of the province and work
11 done in the Algonquin region. So it covered a range of
12 sites, not all, but some very detailed analyses done on
13 a different range of sites.

14 I was quite surprised at the value in
15 some regards and I can explain why I make the comment.
16 I asked: How far down would that go because of knowing
17 what the calculations would give rise to and how many
18 samples you would require. And I was told the value
19 would typically go down to 35 in pure jack pine
20 stands -- sorry, in pure plantations, irrespective of
21 species. And I asked how high it would go, and I was
22 given the value of 65 per cent in mixed wood stands.

23 Now, I have a reference here that I can
24 quote where typically in forestry the value is a
25 hundred. So I have taken what I regard as a provincial

1 average that I have been given by the forest
2 mensurationist in MNR, I have taken the average value,
3 not the high value in this, to indicate the number of
4 samples.

5 THE CHAIRMAN: Okay, but does it not
6 follow then, from what Mr. Castrilli is saying, that if
7 you use the 40 - and that is not the number that
8 changes or you do not think that it is wildly out of
9 sync as to what it should be - then the other only
10 other thing that can really change is the margin of
11 error.

12 DR. OSBORN: Correct.

13 THE CHAIRMAN: And since the Ministry is
14 using typically 10 plus plots in a sample, then the
15 margin of error is a lot higher than five per cent?

16 DR. OSBORN: And I don't disagree with
17 that statement.

18 THE CHAIRMAN: Right. And it could be,
19 as you say, typically as high as 25 per cent.

20 DR. OSBORN: Which really means at the
21 single stand-by-stand level the usefulness of those
22 numbers leaves something to be desired, which is
23 typically why we provide an estimate on which we will
24 use operationally at an aggregate of stands rather than
25 the single stand-by-stand estimates.

1 THE CHAIRMAN: Okay. But leaving that
2 argument aside, Mr. Castrilli, doesn't that answer your
3 line of questioning here?

4 The 40 figure, according to this witness'
5 figure that is the one given to him, and if not
6 accurate, is the one accepted by him as the one used
7 for Ontario, therefore, the only other thing that you
8 can really change is the margin of error.

9 MR. CASTRILLI: Well, I agree that is
10 what would happen, the margin of error would be that
11 high, but I don't believe the Ministry accepts a margin
12 of error that high.

13 I think what is more likely is that they
14 don't do the number of sample plots Dr. Osborn gave as
15 an example which was 250 plus, and the reason why I
16 raise that is because the cost of OPCs, as given by
17 this witness, is a substantial reason why more OPCs
18 should not be done.

19 THE CHAIRMAN: I do not think he
20 indicated that they do 256--

21 DR. OSBORN: No, I didn't.

22 THE CHAIRMAN: --sample plots. He is
23 just saying, to get a margin of error of five per cent
24 that is the number you would have to do based on a
25 co-efficient of 40.

1 MR. CASTRILLI: Well, Mr. Chairman, I am
2 having difficulty with the -- again, I think the
3 example used was an extreme example, if 256 is not what
4 we normally do.

5 If is it much more like 10, 20 or 30,
6 then it seems to me, and the Ministry is not accepting
7 a 25 per cent error, there is something wrong with the
8 equation or maybe the equation isn't used.

9 DR. OSBORN: If I can go one step
10 further, I hope this will clarify the situation.

11 It is 256 plots with that calculation, I
12 went through for that five per cent error with a
13 co-efficient of variation of 40 per cent. 256 plots on
14 whatever the area is that your sampling. Now, I went
15 through and made it obvious if we did this on a
16 stand-by-stand basis what percentage of the area we
17 were sampling.

18 However, it is 256 plots whether we have
19 got 1 stand, 5 stands, 10 stands or 20 stands. Now,
20 that might be hard to swallow, but it is 256 plots out
21 of the population. And if we change the population
22 from a stand estimate to an aggregate of stand
23 estimate, it is still approximately 256 plots on a
24 larger area. So stand-by-stand there may only be 10,
25 20 or 30 plots, but we are looking at 6 or 7 stands

1 aggregated together.

2 And this is why I make this comment that
3 we typically provide an estimate for which some degree
4 of precision is given for a larger aggregate of area.
5 And that is the practicality of what we do as opposed
6 to the arithmetic example I went through to try and
7 explain the situation.

8 MR. CASTRILLI: Q. Let's move on to the
9 issue of OPC costs. Can you advise the Board what the
10 cost per OPC sample plot would be?

11 DR. OSBORN: A. No, I am sorry, all I
12 have is the figures for operational cruise as
13 registered in the Ministry's expenditure accounting
14 system. I don't know the cost per plot.

15 Q. Is that a number you could easily or
16 relatively easily determine or obtain the information
17 about?

18 A. I am not sure whether we would break
19 down the data into a travel time, planning time, plot
20 time, procedure. I know it is done that way in the FRI
21 because I am in charge of it, but whether it is done
22 that way in operational cruise, I am not sure and it
23 would require a breakdown of those numbers
24 particularly -- the biggest difficulty is the breakdown
25 of plot time, travel time, travel to and from the plots

1 as opposed to just plot figures, per se, and that
2 would...

3 Q. Sorry?

4 A. It is okay.

5 Q. Is that an exercise that would be
6 onerous for you to undertake or to obtain the
7 information about. If it isn't I would ask that you
8 do?

9 A. I understand behind your question,
10 but I am not even sure the way the expenditures are
11 recorded within the Ministry that that breakdown of
12 travel time and plot time...

13 Q. Is made?

14 A. ...is made at all, that's all. It is
15 a sort of time and motion study type operation.

16 THE CHAIRMAN: Mr. Freidin, can you
17 indicate whether that is possible?

18 MR. FREIDIN: Mr. Kennedy is whispering
19 in my ear that the information is not available in the
20 form that Mr. Castrilli is seeking it.

21 THE CHAIRMAN: Thank you.

22 MR. CASTRILLI: Q. Dr. Osborn, could you
23 advise whether the OPC could be combined with a cruise
24 for purposes of ecological values to determine what is
25 in a stand or management unit that cutting might lead

1 to?

2 A. It has been suggested.

3 Q. Is that part of the recommendations
4 of Dr. Rosehart or is that something you are aware of?

5 A. Not that I recall, but it has been --
6 that subject has been thought through in different
7 parts of the Ministry before as to whether or not that
8 practice is possible.

9 Q. And your answer is it is possible?

10 A. It is certainly technically possible,
11 yes.

12 Q. To your knowledge it is not done now?

13 A. The reason I hesitate is some parts
14 of the forest ecological classification system, FEC,
15 which do deal with vegetation indicators and soils
16 indicators, you pointed out earlier, there was a
17 suggestion made with a combination of operational
18 cruising in a timber sense being combined with the
19 assessment of the forest ecological classification in a
20 stand, and whether that is being put into practice --
21 I know it was discussed as a possibility.

22 Q. Is that an idea you personally
23 approve of?

24 A. We are back to objectives of
25 management, so whether I personally approve or not is

1 irrelevant. In terms of if it is the most efficient
2 way of gathering data then, yes, I think that it is
3 worthwhile but the "if" is a relevant part of the
4 statement.

5 Q. Well, is it your testimony that
6 combining the OPC for the purposes it is currently done
7 for with the other purposes I have just outlined, would
8 combining it undermine the effectiveness of the OPC as we
9 know it now?

10 A. It could be. We are back to the same
11 discussions we had with the FRI picking up data other
12 than just the trees data. The practicality of that and
13 the expertise to do that and the logistics of the team,
14 there is a whole range of things.

15 For example, with the sampling scheme we
16 just talked about for the OPC for which we have just
17 worked out how many sampled, is that the appropriate
18 sampling scheme and number of samples for some other
19 feature of another population.

20 I cannot sit here and say: Yes, no. It
21 requires looking at what populations, what attributes
22 you are discussing. I don't know whether the way we do
23 OPC with plots is the most relevant way of collecting
24 information on deer habitat, for example, in terms of
25 technique.

1 Q. But your understanding is that it has
2 been discussed, in any event, within MNR?

3 A. It has been discussed with relation
4 to forest ecological classifications, sir, definitely.

5 Q. Now, at paragraph 66 of your evidence
6 you indicate that the FRI is also used for non-timber
7 management purposes. Particularly, I am referring now
8 to Document 34 which commences at page 234.

9 On page 234 you say that and you refer to
10 other things such as economic investment and prime site
11 studies. Is it your testimony that notwithstanding the
12 general large area estimate nature of the FRI it can in
13 fact be of use in these areas?

14 A. What page 234 states is the
15 forester's use of the FRI.

16 Q. Are you saying foresters use it for
17 that purpose?

18 A. I am saying foresters use it for the
19 purposes given on page 234.

20 Q. What is the source for page 234?

21 A. General knowledge of how foresters
22 use the FRI data.

23 Q. Obtained by you through your
24 experience?

25 A. Yes.

1 Q. Would you not expect mediocre results
2 by using the FRI in these areas?

3 A. We are into the level of data
4 required for the kind of analysis being done. There is
5 no right or wrong answer to that sort of question. It
6 depends on the analysis being done, the area of
7 geography, the objectives of the exercise as to whether
8 or not the FRI is the most appropriate data source or
9 not, also whether it is also the only available data
10 source.

11 Q. Page 235 you also talk about land use
12 planning uses of FRI, in particular, for example,
13 wildlife habitat, cottage lot planning, park and Hydro
14 line proposals. Would we not also expect mediocre
15 results here?

16 A. No, not necessarily.

17 Q. On page 236 of Exhibit 78 modeling
18 fire behaviour, fuel mapping, evaluating the impact of
19 fire on present and future wood supply.

20 Would we not also expect mediocre results
21 for all of these areas by using the timber-based FRI
22 that is less than adequate for timber purposes?

23 A. No. And, again, I am not quite sure
24 what your definition of the word mediocre is, but my
25 attitude is no, if that is the only source of data or

1 the most appropriate source of data for the level of
2 analysis being conducted, you will get results that you
3 understand the limitations of knowing the sources of
4 the data.

5 Q. I am using the term mediocre in the
6 sense that Dean Baskerville used it.

7 THE CHAIRMAN: How do we know how he used
8 it, he is not here?

9 MR. CASTRILLI: Well, I am using it in
10 the sense it was referred to at page 42 of Exhibit 16.

11 Q. Let me refer you to paragraph 6. I
12 understand from your testimony that with respect to FMA
13 lands, the assessments referred to such as stocking
14 assessments are the responsibility of the FMA holder
15 and are checked by the MNR; is that right?

16 A. Yes, on FMA lands, yes.

17 Q. Can you advise the Board what
18 percentage of such assessments performed by FMA holders
19 have been checked by MNR?

20 A. I don't know. You would have to look
21 at each and every FMA, you would have to look at the
22 records of each and every FMA to assess the area that
23 in fact was assessed.

24 MR. CASTRILLI: Dr. Osborn, this is the
25 Canadian Environmental Law Association's Interrogatory

1 No. 6 relating to paragraph 68.

2 THE CHAIRMAN: Exhibit 129.

3 ---EXHIBIT NO. 129: Response by MNR to Interrogatory
4 Question No. 6 posed by CELA.

5 MR. CASTRILLI: Q. Now, in response to
6 the question we asked, you indicated checking these
7 assessments is the responsibility of MNR, and you have
8 indicated that you don't know what percentage of such
9 assessments performed by FMA holders have been checked
10 by the MNR.

11 And your testimony is that it would be --
12 this information would be available where?

13 DR. OSBORN: A. From the last sentence,
14 that subject -- whether that level of detail would be
15 provided, that subject will be covered in Panel 16.

16 Q. So your testimony: We will have the
17 answer to that question in Panel 16?

18 A. I don't know whether Panel 16 will
19 provide that specific piece of information, but the
20 subject of both monitoring and audit of stocking and
21 other facets of FMAs is in Panel 16.

22 Q. Do you know what form MNR checking is
23 reported?

24 A. Did you say what form that it is
25 recorded?

1 Q. Reported.

2 A. Reported. Oh, okay. No, I am not
3 sure.

4 Q. Would you know whether Panel 16 will
5 be able to answer that question?

6 A. No, I don't know the content of Panel
7 16 in detail.

8 MR. FREIDIN: 16 will be able to provide
9 that information.

10 MR. CASTRILLI: Thank you.

11 Q. Can you advise what panel will deal
12 with F -- excuse me, free to grow assessments which I
13 also understand from your response to the interrogatory
14 are the responsibility of MNR?

15 MR. ARMSON: A. Panel 4.

16 DR. OSBORN: A. Panel 4 will speak to
17 them as to what they are and how they are done, also
18 will speak to the results of free to grow assessments.

19 MR. CASTRILLI: Q. One moment. You
20 indicate in your testimony that a failure to ensure
21 that the area of production forest is correct could
22 cause the maximum allowable depletion to be in error
23 and result in either over or undercutting; is that
24 correct?

25 A. That's correct.

1 Q. Can you advise the Board of the
2 nature and frequency of MNR checking of FMA holder
3 efforts to ensure that the production forest area is
4 correct?

5 A. There is two major causes for the
6 production forest; that is, the area for the MAD to
7 change. The first major basis is depletions, and
8 depletion records for the FMAs come from the FMAs and
9 they are checked quite considerably as to their
10 location and amount on an annual basis.

11 In fact, there is considerable
12 interactive dialogue between the Ministry staff and the
13 company staff to verify that in fact the areas stated
14 to be depleted, in fact, are so and that is the
15 hectares that, therefore, come out of the MAD base for
16 depletions.

17 The second major change to the base for
18 the MAD calculation are those hectares that are free to
19 grow, and they are the hectares that go back in. And
20 that is the responsibility of the Crown and, as just
21 indicated, that subject will be dealt with and the
22 results described in Panel 4.

23 So the two major causes to cause the
24 possible error in the base is the depletion end and
25 what is called the accrual end or the putting back into

1 the base.

2 Q. And you have indicated in your
3 testimony that the depletion end will be reviewed in
4 Panel 16?

5 A. That's correct.

6 Q. Thank you. Page 35, paragraph 71.
7 You refer to possible technological improvements in the
8 accuracy and precision of the FRI. Can you advise the
9 Board respecting any improvements in the accuracy and
10 precision that have resulted from the new technologies
11 referred to?

12 A. On page 36 in paragraph 74, reference
13 was made to infrared photography, and during the
14 discussion of that evidence comments were made as to
15 not the use of infrared photography that had proved
16 more advantageous, but aquafilm.

17 We have been using aquafilm for the last
18 two years and in the last two years we have generally
19 found that that process is at the same cost as Kodak
20 was before, the film has proven to be more satisfactory
21 in interpretation from the interpreter's viewpoint with
22 regards to haze.

23 Haze is a problem, we talked about timing
24 of aerial contracts, aquafilm because it is closer to
25 the infrared end of the spectrum, has proven to be at

1 the same cost as Kodak, a more useful product than the
2 Kodak film. So of that list, at this point in time,
3 operationally that is one item that has proven
4 successful.

5 Also on page 36, was a comment as regards
6 to the use of mini-prints, and we have used mini-prints
7 operationally in the last three or four years. Again,
8 over the last three or four years we have not had a
9 contract go over the operational limit in terms of
10 timing and completeness by having that in-house quality
11 control in the course of the year.

12 So for those two that were on the list,
13 that is two out of that list that have already proven
14 successful. We have got a large-scale -- large-scale
15 photography trial on-going at the moment. The analysis
16 for that is still incomplete. We are back to the usual
17 dilemma of comparing volumes with technique A versus
18 technique B as to which one is right.

19 That is certainly -- that large-scale
20 photography should provide better volumetric estimates
21 certainly with some knowledge of statistical precision.

22 So there is three of the list, two of
23 which are operational, the third at the moment is in
24 the process of being analysed.

25 Q. Has the Ministry produced any studies

1 to confirm that there has been an improvement, to your
2 knowledge?

3 A. Not that I can think of, no. It is
4 an operational thing that we discuss with the field and
5 describe what's happening and talk to the users as to
6 what the changes had been and what generally has been
7 the improvements included.

8 Q. That's fine. Thank you. Paragraph
9 78, page 37. You refer there to field foresters being
10 able to keep their FRI up to date through the use of
11 software. Has the Ministry produced any studies or
12 have any records which indicate an improvement
13 resulting from this?

14 A. They haven't produced a study that's
15 analysed that, no.

16 Q. Paragraph 82, page 39. You refer
17 there to new FRI mapping and database. Can you confirm
18 that the data generated will still be general in
19 nature?

20 A. The FRI, as is described, is a
21 stand-by-stand listing and, in fact, with reference to
22 paragraph 82, one of the perhaps most useful
23 developments we have seen so far has been the ability
24 to generate for field foresters very quickly lists of
25 those stands that are most likely to be susceptible to

1 spruce budworm damage.

2 Now, the spruce budworm program in
3 Ontario has been quite considerable and, therefore, it
4 really behooves us to know where we should really pay
5 attention to where that damage might be.

6 Field foresters have provided paramaters
7 of what stands with what conditions in their estimation
8 are susceptible. Having the data organized in that
9 database has enabled us to turn around and provide
10 estimates within 48 hours of the areas and stands most
11 susceptible.

12 So with regards to a user's question, a
13 field forester's question, those data have provided an
14 estimate that seems to be satisfactory as a guide to
15 the field forester for that purpose.

16 Q. Can you advise what the size of the
17 area is that will be analysed or that would normally be
18 analysed?

19 A. Oh, it may range all the way from the
20 one working group or two working groups in a management
21 unit to two or three working groups in 10 or 11
22 management units. We typically will get an answer to
23 look at all the spruce and balsam working groups in the
24 whole northwestern region.

25 Q. Paragraph 84, page 39. Would it be

1 fair to assume that the users of the data you refer to
2 in that paragraph will be unit foresters?

3 A. Or the company forester.

4 Q. Unit or company foresters. Page 239,
5 Document 36, it is a table called Growth Stock Approval
6 and Depletions. Can you confirm, Dr. Osborn, that the
7 area and volume cut by using the MAD will vary?

8 A. On an annual basis we are talking; a
9 five-year basis?

10 Q. Use a 1, 5 and a 20 if you like, if
11 you think the answer will change.

12 A. On a one-year basis, the area and/or
13 the volume may vary from year-to-year, certainly. On a
14 five-year basis, between five-year periods with the
15 recalculation of five-year intervals, very likely the
16 value in area and volume will change. It depends on
17 the circumstances and, in a 20-year basis, the values
18 may change.

19 Q. And that would be true for volume
20 growth as well; would it not?

21 A. It would be true for volume
22 certainly, yes.

23 Q. And can you confirm for me that on
24 page 239 you have the MAD and the volume growth as
25 straight lines -- excuse me, for MAD for the period

1 today to planned period?

2 A. Yes, for the planned period. As
3 indicated before, the MAD is calculated for a five-year
4 period as a single value as a flat line. For the
5 five-year period it is a "constant figure". It is in
6 fact calculated for the five-year period.

7 Q. But the expectation is that in fact
8 the eventual numbers will in fact vary, or that the
9 line will in fact eventually not be a straight line?

10 A. The actual cut within the five-year
11 period on an annual basis is almost certainly going to
12 vary. Yes.

13 Q. Okay. If you were going to show the
14 same curves for working groups for sample FMAs, how
15 would you draw the line? Would you draw the same line?

16 A. You have got two different animals.
17 You have got an FMA and a working group, which one are
18 we going to talk about?

19 Q. For working groups of sample FMAs.

20 A. Okay. We described before that this
21 particular graph was drawn for a forest unit. When I
22 described what a forest unit was, the simple
23 translation I told you to go through was it translates
24 first of all as a working group. So it is a diagram
25 for working group already.

1 Q. So this is typical for what we would
2 see on an FMA?

3 A. It is typical for what you find on a
4 management unit whether it is FMA or not.

5 Q. Fine. Page 40 of your evidence, it
6 is paragraph 87. You refer in that paragraph to a
7 sustained long-term supply. Can I presume, however,
8 that the sustained long-term supply will vary?

9 A. It may.

10 Q. And if it varies, how much would you
11 anticipate it varying?

12 A. Because this -- it is very hard to
13 answer that question, is really why I spent a long time
14 going through the reason why we recalculate this
15 procedure every five years. Panel 4 will go into some
16 detail about sort of long-term projections and what the
17 ranges may be.

18 Now, how much may it vary? It may vary
19 considerably. In fact, evidence in Panel 4 will
20 indicate a possible range of values, one of which is
21 doubled the other one. So we are talking about what
22 level of sustained yield are we talking about and the
23 level at which sustained yield may vary could change
24 over time. Given there is a market for it, we make
25 every effort to increase it, that level.

1 Q. That's Panel 4?

2 A. That's Panel 4.

3 Q. Paragraph 88. You refer there to
4 traditional methods for yield regulation. Actually,
5 there are three: area, volume and increment. Can you
6 confirm -- would you confirm for me that a further
7 method exists which is a combination of area and
8 volume?

9 A. I think the testimony will show or
10 the record will show that when I went through those
11 three I mentioned that you could have a combination of
12 any of those three in pairs or all three together, and
13 there is a whole slew of different yield regulation
14 procedures which--

15 Q. Sorry.

16 A. --which in fact are either
17 combinations of all or parts of those three major
18 facets.

19 Q. Can I refer you to Exhibit 106, Davis
20 '87. It is just Davis outlining that what is meant by
21 area control and volume control combined. So that can
22 I presume that you are familiar with the use of area
23 and volume together?

24 A. There are a variety of techniques
25 using the area and volume combined.

1 Q. Your answer is yes?

2 A. Yes.

3 Q. Would you agree with me that it was a
4 method the Ministry of Natural Resources used before
5 under the 1977 Manual of Forest Management which is
6 now, I believe, Exhibit 112?

7 A. No, it wasn't.

8 Q. No?

9 A. The method that you are alluding was
10 in fact a growing stock or volume and increment method
11 which is called Gerhardt's equation which is primarily
12 a volume and increment method combined. He uses
13 growing stock and increment in the formula.

14 Q. Can I refer you to page 19 of Exhibit
15 112.

16 A. Of exhibit...

17 Q. 112, the 1977 Forest Management Plan
18 Requirements, the green book.

19 A. Which page, please?

20 Q. There are two pages, pages 18 and 19.
21 Let's begin with page 19, under the heading A, first
22 paragraph.

23 "Calculation of the allowable cut for
24 forests managed under silvicultural
25 systems that produce more or less

1 evenaged stands such as the clear-cut
2 and shelterwood systems shall be done by
3 both an area and volume method."
4 Now, that's area and volume combined; is
5 it not?

6 A. No. The actual method used in that
7 time was the same as I went through, it is essentially
8 an area control mechanism. As I described, there is a
9 volumetric estimate provided with that area control
10 method, the method is that of area, not area and
11 volume.

12 The volume is not used as a control
13 mechanism in that procedure and the procedure I went
14 through describing MAD is exactly the same as that
15 described on page 19. It is an area method of which
16 there is a volumetric estimate provided in addition.

17 Q. So notwithstanding the clear words on
18 the page, page 19, your testimony is that in the 70s
19 the Ministry of Natural Resources did not use an area
20 and volume method?

21 A. No, it used an area method with a
22 volumetric estimate, the same as I described, and it
23 also used a second method that's described in the next
24 paragraph.

25 Q. What does the wording mean to you in

1 the fourth line on page 19 when it says:

2 "...shall be done by both an
3 area and volume method"?

4 Doesn't that sound like they are saying
5 to the reader, do it by both?

6 A. Okay. What it means to the reader,
7 as I know what the procedure was that was done in the
8 1970s.

9 Q. So did they write this wrong on this
10 page?

11 A. No, not necessarily write it wrong.
12 Again, for this manual there was an explanation and
13 courses given as to how to do the, at that time,
14 allowable cut calculation. There was no need to
15 necessarily classify it into what did a textbook
16 describe it as, essentially we described what the
17 process was and people learned how to use it.

18 Q. Now, Document 38, which is at page
19 241 of your evidence. I understand from your testimony
20 that it is a way -- we are referring there to Von
21 Mantel's formula. Is it correct to say that it is a
22 way to calculate the allowable cut with limited
23 information as it depends on an estimation of the
24 actual growing stock in a forest?

25 A. This, as you may recall, is a piece

1 of the evidence that we skipped over. However, in
2 answer to your question, yes, it is a method of
3 calculating allowable cut with very simple and very
4 restricted amounts of information.

5 Q. Would you agree that it can over or
6 underestimate the allowable cut?

7 A. Given that it is a very limited
8 amount of information, yes.

9 Q. And would you agree that the formula
10 is crude and should be used only for lack of better
11 data and with full knowledge of the assumptions upon
12 which it is based, its limitations and the structure of
13 the forest to which it is applied?

14 A. I hope that would apply to all
15 methods of yield regulation.

16 Q. Would you agree, subject to
17 verification, that that is Kenneth Davis' conclusion in
18 what is now Exhibit 105 at page 115?

19 A. It wouldn't surprise me. As I say,
20 it is a model that one uses with care and trepidation.

21 Q. And would you agree that one of the
22 assumptions that causes some problems is the equal
23 growth assumed which, if we look at your page 241, is
24 the diagonal line?

25 A. That's one of the problems. There is

1 a variety of them. The abnormality of the forest is
2 what gives the greatest degree of anxiety in using Von
3 Mantel's formula for whatever reason, be that unequal
4 growth rate or variable age-classes.

5 If your forest is not normal, Von
6 Mantel's formula can give you some very erroneous
7 results.

8 Q. Just on Exhibit 112, which was the
9 1977 manual, it is again at page 19. Just confirm that
10 in this manual the Ministry is recommending using
11 Gerhardt's formula which is a volume increment; is that
12 right? It is the second paragraph on that page under
13 A.

14 MR. FREIDIN: What page?

15 MR. CASTRILLI: Page 19.

16 DR. OSBORN: Gerhardt's formula is given,
17 Mr. Chairman, on page 254 of the evidence-in-chief, the
18 actual form of the equation.

19 THE CHAIRMAN: But it is --

20 DR. OSBORN: And it was used in the 1970s
21 as indicated in the manual, yes.

22 THE CHAIRMAN: That is the one that was
23 recommended be used?

24 DR. OSBORN: That is the one that was
25 used in the 1970s as a check on the area method.

1 MR. CASTRILLI: Q. Paragraph 90. I
2 should really look at Document 39 In conjunction with
3 it. Paragraph 90 you note the widely different annual
4 yield results; is that right?

5 DR. OSBORN: A. Yes. Again, I will
6 stress that we did not present this evidence because we
7 felt it was going into details on a method that was not
8 that which is used by the Crown at the moment in
9 Ontario.

10 THE CHAIRMAN: If that is not what is
11 used, Mr. Castrilli, what value is it to you?

12 MR. CASTRILLI: Well, I wasn't sure at
13 the time that it wasn't used. But I only have one or
14 two questions with respect to it, Mr. Chairman.
15 Actually, I have got two questions with respect to it.

16 Q. Just looking at page 242, Dr. Osborn,
17 I calculated this two different ways. But can you
18 confirm more for me that the results vary from 84.5 per
19 cent of the theoretical normal for forest A to 161.7
20 per cent for forest D?

21 DR. OSBORN: A. The annual yields on
22 that Table 242 range from 256 in the annual yield
23 column, which is the fourth column on the table, to
24 490, that range over a norm which runs in and around
25 300.

1 I assume you are calculating percentages
2 on the basis of that norm of 300, given the arithmetic
3 is right, yes, and it exemplifies exactly what I said
4 about the dangers of using Von Mantel's formula. Thus
5 forest range from very immature to normal to overmature
6 and you run some risks if you use that formula without
7 an understanding of how and how it has been derived.

8 Q. So the variation is approximately 80
9 per cent?

10 A. Again, I don't know what the
11 arithmetic shows.

12 Q. All right. Well, just to confirm
13 what I did, and you can then verify it at your leisure.
14 I simply divided - there are two ways really - the
15 immature, which is under A, divided by the theoretical
16 normal will give your 84.5 per cent and your D,
17 overmature, divided by your theoretical normal would
18 give you 161.7 per cent. Is that the way to do it if
19 you were looking at the comparable numbers.

20 THE CHAIRMAN: Mr. Castrilli, I hate to
21 interrupt but the applicant specifically left this
22 information out of their direct examination. I mean,
23 it is before us in written form, but they did not
24 allude to it in their oral testimony, and presumably
25 that was on the basis that the Ministry does not use

1 this formula and there are some obvious problems with
2 it, and this witness has confirmed that that is not
3 what the Ministry uses.

4 So what is the purpose of going through
5 the calculations and going through the mathematics if
6 it is not what the Ministry uses. And, I presume,
7 witness, it is not what the Ministry intends to use in
8 the future?

9 DR. OSBORN: Correct, sir.

10 MR. CASTRILLI: Mr. Chairman, I intend to
11 compare these numbers with what the Ministry does use.
12 So I think it is important to know if I have the
13 percentages right.

14 THE CHAIRMAN: Well, What are you
15 comparing it against? You are comparing it against
16 something that the Ministry does not use.

17 MR. CASTRILLI: That's right. If the
18 percentages are similar, then I will have some
19 questions to ask about them because the Ministry
20 indicates the results vary widely.

21 And if in later calculations, based on
22 what the Ministry does do, the results also vary
23 widely, I would like to know what the Ministry means by
24 very widely as it used the term in paragraph 90.

25 THE CHAIRMAN: Well, why don't you just

1 ask them what they mean by the term "used very widely".

2 MR. CASTRILLI: Well, that's was I am
3 doing. I mean, I am asking -- I am assuming that the
4 results on paragraph 90 and Document 239 approximate an
5 80 per cent range, and that's why they are prepared to
6 say that the results vary widely.

7 DR. OSBORNE: Mr. Castrilli, the value --
8 on page 242. If the value for the immature forest is
9 256 because of its structure in terms of growing stock,
10 the value comes out at that 256. If the forest was
11 younger, the volume would be even lower.

12 In fact, if the forest was all in the
13 1-20 age-class the value would be almost zero. So the
14 more non-normal the forest, the greater the range.
15 If you had an excessively overmature forest, in example
16 D, the value would be in excess of 490.

17 And all I was showing on that page, which
18 we didn't speak to, was that depending on the state of
19 the forest the range of values you calculate with that
20 formula can vary depending upon the stages and state of
21 the forest. That's all I was trying to exemplify.

22 MR. CASTRILLI: Q. You say in paragraph
23 90 it would vary widely and all I am asking you to
24 confirm is that in fact the variance is 80 per cent.
25 It is a very simple question, I have already given you

1 the math for it.

2 So would you agree that when you say vary
3 widely in paragraph 90 you mean that because the
4 difference is approximately -- the variation is
5 approximately 80 per cent?

6 A. In that arithmetic example, and on
7 242, I could have chosen other arithmetic examples.

8 Q. Well, those are the numbers you chose
9 to prove your point they vary widely?

10 A. I am not proving a point, sir, I am
11 trying to exemplify a point.

12 Q. Well, can you give me a yes or no to
13 whether it is 80 per cent or not? I have given you
14 the math.

15 A. In that arithmetic, yes.

16 Q. Thank you. Now, paragraph 91, you
17 are there referring to another formula which is found
18 at page 243. Can you advise the Board how this formula
19 accounts for the irregularity of the forest on yield
20 regulation?

21 A. Yes. The concept at the top of the
22 page, a fairly obvious concept in a way, it infers that
23 the amount of yield that may come from the forest is
24 rather proportional to the amount of forest you have
25 got out there.

1 If you have got a little forest, you take
2 a little yield; if you have got a big forest, you take
3 a big yield. And the first equation, the first
4 equalization says the yield in proportion -- the yield
5 actual in proportion to the growing stock actual is a
6 constant ratio. Little yield out of a little forest,
7 big yield out of a big forest.

8 Now, that concept got translated into the
9 arithmetic that is shown in Hundeshagen's formula
10 because if you go through the algebra of moving things
11 from one side to the other you end up with a statement
12 that says the annual yield, yield actual from the
13 previous concept is the yield normal adjusted by a
14 factor taking into account the smallest or bigness of
15 the forest in relation to its growing stock.

16 So if you think of that first formula on
17 Hundeshagen and you have the yield normal, what would
18 you expect you take on average adjusted by -- if we
19 have a large overmature forest, the growing stock
20 actual is going to be larger than the growing stock
21 normal. In the venacular we used earlier, accelerate
22 the cut.

23 If in fact the growing stock actual,
24 because the young forest is less than the growing stock
25 normal, we decelerate the allowable cut.

1 So the concept that was in the top of the
2 page gets translated into an annual yield formula which
3 says we take what we would normally take adjusted by
4 the state of the forest.

5 Now, at the bottom of the page, just to
6 track that concept one step further by exemplifying how
7 Ontario takes its "normal" MAD, area divided by
8 rotation, and adjusts that on the basis of age because
9 we are using an area method of control.

10 You couldn't use area, an actual average
11 area or the normal average area because they would be
12 of volumes, they would cancel each other out. So you
13 use age as a weighting of the area, and we described
14 how we get the weighting.

15 So the concept at the top of the page
16 little forest/little cut; big forest/big cut translates
17 into the formula at the bottom of the page which is
18 what Ontario uses.

19 Q. Paragraph 93. Your testimony there
20 is that volume data for the FRI are estimated, and I
21 gather from your testimony that that's -- because it is
22 an estimate it is a problem; is that correct?

23 A. Because it is an estimate, as
24 inferred at page 244 of the witness statement, because
25 it is an estimate and, therefore, likely to be less

1 accurate in area we, at this point in time, would
2 sooner use area for yield regulation than using volume.

3 This in fact is sort of a corroboration
4 of the statement that Dr. Baskerville made in Exhibit
5 16 on pages 14 to 15. He also recommended that we
6 think about volume, but he recognized that it created
7 enormous difficulty at this point in time.

8 Q. I want to refer you to Exhibit 16,
9 but on a different page. I refer you to pages 8 and 9
10 of Exhibit 16. Strictly under the heading Objectives,
11 the first two paragraphs, can you advise the Board
12 whether you agree with those two paragraphs?

13 A. I believe that those two statements
14 which were valid when made were made without due
15 cognizance of what is now in the Timber Management
16 Planning Manual, and I believe the Timber Management
17 Planning Manual -- objective statement now calls for a
18 numerical objective to be stated, which is one of the
19 concerns that Dr. Baskerville had.

20 Q. Sorry, Dr. Osborn, the manual--

21 A. Exhibit 7.

22 Q. --Exhibit 7 was not available to Dean
23 Baskerville?

24 A. He states that it was and he states
25 that he used it and, with all due respect, either he

1 didn't use it and read it and understand it thoroughly,
2 or he misunderstood some of the statements inside it
3 because the current manual, the Timber Management
4 Planning Manual, Exhibit 7, asks for numerical
5 objectives.

6 And the plans that Dr. Baskerville looked
7 at, as far as I understand, the six he looked at were
8 not prepared using that manual and he didn't find those
9 stated numerical objectives. Hence, his comment on
10 page 8. His comment: "The need to have those
11 objectives...', I agree.

12 Q. So Dean Baskerville chose six
13 unrepresentative management units, timber management
14 plans to look at?

15 A. I cannot comment as to which six and
16 why Dr. Baskerville either chose those or was given
17 those, I do not know the foundation for the six units
18 that were selected by Dr. Baskerville.

19 Q. But your testimony is the six he
20 looked at are not representative?

21 A. No. The six he looked at may or may
22 not, and I do not know, contain the numerical
23 objectives in all six. The statement he makes about
24 the need for numerical objectives I agree with.

25 What I am saying is that the new Timber

1 Management Planning Manual requires that, which is
2 good.

3 Q. Now, looking at page 9 - I don't want
4 to read the entire paragraph into the record. Again,
5 I will just read the parts I would like you to comment
6 on.

7 Beginning at the bottom of page 8 it
8 says:

9 "Without knowledge of the industry and
10 its raw material needs in both quantity
11 and quality it is not possible to say if
12 the target forest structure is consistent
13 with the target of sustaining industry.
14 This is an important consideration
15 because the goal of achieving a balanced
16 age-class distribution in the forest in
17 the shortest possible time and the goal
18 of an evenflow of raw materials can be
19 substantially inconsistent with each
20 other in the time frame of the first
21 rotation."

22 And just before I ask you to comment, I
23 will just read the last part of that paragraph:

24 "It was clear on each of the FMA units
25 that the company desired evenflow of raw

1 materials to be maintained during the
2 conversion to a balanced age-class
3 structure. In these cases there was a
4 more or less serious inconsistency within
5 the objectives."

6 Can you advise whether you agree with
7 those comments?

8 A. I am very surprised at the statement.
9 Most industrial units I am aware of -- most of the
10 forest management agreement areas I am aware of, at any
11 point in time, there is a need for some approximation
12 of even volume.

13 Most of the units and most of the
14 technology changes that take place in the course of a
15 rotation of trees, 60 to 80 years, may well necessitate
16 different levels and, in fact, all the vast experience
17 within this province I can think of has indicated a
18 change in mill requirement up or down as technology has
19 changed.

20 So that for a short time horizon, yes,
21 the industry may be interested in a desired evenflow of
22 raw materials being maintained, fair comment, but
23 during the conversion to a balanced age-class
24 structure, which typically takes at least one rotation,
25 now come on, do you think that in 60 or 80 years that

1 level is going to be held constant.

2 Q. So your testimony --

3 A. Typically the technology will change,
4 thus the mill requirement will vary. We went through
5 an example if you change rotation that the flow may
6 vary, over a complete rotation the idea of a mill
7 requiring exactly the same volume an even amount, I
8 somehow cannot imagine.

9 THE CHAIRMAN: I take it you don't agree
10 with the statement?

11 DR. OSBORN: Yes, sir.

12 MR. CASTRILLI: Q. Do you agree there is
13 a need to connect the volume to area?

14 DR. OSBORN: A. Oh yes, I do.

15 Q. And so you agree with that part of
16 Dean Baskerville's comments with respect to that, pages
17 13 and 14?

18 A. Yes, hence the desire in the FRI to
19 enhance that particular facet of the FRI, very much so.

20 Q. And you agree at this time - and
21 actually I believe you read this into the record - you
22 obviously agree with the first paragraph on page 15,
23 the first full paragraph on page 15?

24 A. Yes.

25 I read that into the record with

1 reference to what was on the bottom of page 14 as well,
2 so as long as it is taken in context.

3 Q. Fair enough. And I presume you would
4 agree with Dean Baskerville's comments in his
5 conclusions in Exhibit 16 at page 85, that the FRI
6 needs overhaul, particularly with respect to this area
7 of volume connection he speaks of?

8 A. This more or less is what I confirmed
9 when I talked about the forest resource inventory in
10 totality, that volumetric estimate I think needs to be
11 improved, from whatever source.

12 Q. And I presume you would agree that
13 the potential harvest derived from the MAD data must
14 contend with volume per unit area translations which
15 are highly variable?

16 A. The reason I hesitate is on what
17 piece of geography they are highly variable.
18 Stand-by-stand I concur. Taken over the total number
19 of hectares cut in any one year, that may or may not be
20 the case. I have no difficulty in understanding there
21 is a stand-by-stand variability.

22 Q. The general conclusion we find in
23 Exhibit 61, the Woodbridge Reed Report --

24 MR. FREIDIN: Is there a particular page
25 to go with it?

1 MR. CASTRILLI: Sorry, I was going to
2 refer you to a particular page. I will come back to
3 that.

4 Q. I believe it is page -- excuse me, it
5 is page 19, the second sentence.

6 Sorry, do you have the paragraph, Dr.
7 Osborn?

8 DR. OSBORN: A. Yes.

9 Q. The first paragraph on the page, the
10 second sentence.

11 A. Yes.

12 Q. I am sorry, do you agree with that
13 general proposition put forward by the authors of
14 Exhibit 61?

15 A. Yes, particularly with reference to
16 their comment on tree utilization and broomage factors.

17 Q. And do you agree with the second
18 sentence in paragraph 1?

19 A. Well, this is why I say the next
20 sentence goes on to explain why some of those
21 variations, stand-by-stand basis are highly variable,
22 in fact there is difference utilization of broomage
23 factors.

24 Q. So can I take it that you agree
25 generally that the province will have extreme

1 difficulty providing for sustained yield, or continuous
2 yield for that matter, based on volume estimates?

3 A. No, I do not agree with that
4 conclusion.

5 Q. You don't agree?

6 A. No.

7 Q. Regardless of how variable the
8 estimates are?

9 A. Yes, but the extreme difficulty is
10 something you can speak to and we will speak to in
11 Panel 4 as to how you can, in fact, not deal with it,
12 but certainly have some knowledge about its impacts.

13 Q. Panel 4?

14 A. Panel 4. With a reminder that we are
15 talking of volumes tomorrow, all the inherent
16 difficulties that you could even go on record of saying
17 of estimating what is going to happen tomorrow.

18 MR. CASTRILLI: I am actually going to
19 be pretty close to my original estimate.

20 Q. Page 245, it is a Document 43. You
21 are referring there to -- sorry, do you have the page?

22 DR. OSBORN: A. Yes.

23 Q. You are referring there to
24 managerially selected rotation as an essential
25 characteristic of the MAD calculation. It is Item 3 on

1 that page.

2 A. Rotation is an inherently important
3 characterization for any method of yield regulation.

4 Q. I don't recall your testimony on
5 managerially selected rotation. Did you actually
6 advise the Board what it is and how it is determined.

7 A. I gave four examples of four
8 different kinds of rotations, including maximum value
9 production, technical, pathological and economic.

10 Q. So those four combined constitute
11 what you are describing in Item 3 as managerially
12 selected.

13 A. No, no. They happen to be four
14 classes of rotation.

15 Q. Are you saying that any one of them
16 constitute managerially selected rotation.

17 A. A rotation is merely the length of
18 time from the time you cut the trees down to the time
19 when you cut the trees down the next period. Rotation
20 definition. It is in the Exhibit 7.

21 How you determine that value
22 "managerially" depends on a variety of factors and that
23 is exactly what I described when I described the four
24 processes and you can use any one of those four or any
25 mix of those four. It depends on the working group, it

1 depends on the location, it depends on the product and
2 we went through what those four were.

3 Q. So all you are really saying when you
4 are using Item 3 is that management can select one of
5 those four?

6 A. Management can pick a rotation.

7 Q. All right. Does the Ministry
8 consider silviculture improvements in calculating their
9 rotations?

10 A. Yes.

11 Q. Would it be fair to say there is
12 nothing in place to evaluate the reasonableness of the
13 currently accepted rotations that the Ministry uses?

14 A. No.

15 Q. You are saying that is not a
16 reasonable statement.

17 A. Correct.

18 Q. Would you like to take out Exhibit
19 16, then. It is the first full paragraph on that page.
20 This is Dean Baskerville's variables page, this is Dean
21 Baskerville's Audit.

22 MR. FREIDIN: Which page.

23 MR. CASTRILLI: Oh I am sorry, page 19.

24 Q. The last sentence in the first full
25 paragraph on that page, Dean Baskerville indicates:

1 "There is nothing in place to evaluate
2 the reasonableness of the currently
3 accepted rotations in terms of their
4 Consistency with stands of economic value
5 and trees of economic sizes for a
6 specified industrial base."

7 Do you agree with that?

8 A. If I knew exactly what the statements
9 meant I would be in a better position to agree or
10 disagree. I am not sure whether Dr. Baskerville is
11 alluding to economic rotations when he used the words
12 economic in there. I really don't know in what context
13 that that statement is being made, because with regards
14 to the two rotations I described initially, maximum
15 volume and technical, there certainly are data that can
16 indicate a justification for those selected rotations.

17 Now, as soon as you bring the whole
18 economics into it and if you are determining economic
19 rotations, which I did not go into in any detail
20 whatsoever because of the difficulty of trying to
21 estimate product value 60 years from today. Now, that
22 is -- if you are talking about economic rotation, the
23 last sentence alluding to something, that trying to
24 estimate the economic value, price of a product 60 years
25 from today, gives rise to discussion with economists

1 for ever. Now, I am not sure that is what Dr.
2 Baskerville is alluding to.

3 Q. Let's look at the two sentences above
4 that, beginning: "the volume -- "

5 Now, I believe -- Dr. Osborn maybe you
6 can just confirm my understanding of what I believe is
7 going on in this paragraph. I think Dr. Baskerville is
8 talking about the fact that some Ministry of Natural
9 Resources rotations in use now may be too short to
10 produce either volume or an economic tree size.

11 I think that is what he is talking about
12 in the sentence just above that and he then says:

13 "The current system requires
14 justification of all changes in rotation
15 length away from the standards."

16 I think - and you can tell me if you
17 think I am wrong - but I think Dean Baskerville is
18 there talking about the shortening in rotation age
19 proposed by the Ministry.

20 THE CHAIRMAN: Mr. Castrilli, we have
21 been through this type of objection before, of this
22 query by the Board. Dean Baskerville is not before us.

23 What he means by any statement he makes
24 in this report is sheer speculation on both your part
25 and the witness' part. You have asked the witness

1 whether he agrees with that particular paragraph, he
2 has indicated he doesn't quite know what Dean
3 Baskerville means. You are now trying to--

4 MR. CASTRILLI: Mr. Chairman, I don't --

5 THE CHAIRMAN: --set out what Dean
6 Baskerville in fact means. The only way we are going
7 to find out, Mr. Castrilli, really is if Dean
8 Baskerville was here and that question was put to him
9 directly.

10 MR. CASTRILLI: Mr. Chairman, he is
11 not -- this paragraph is patently clear on its face.
12 In the first sentence he says -- he is talking about
13 the issue of shortening the rotation age.

14 THE CHAIRMAN: Well, why don't you just
15 ask the witness based on that paragraph: Does he agree
16 with the statement by Dean Baskerville in the last area
17 that you originally alluded to. And he indicated
18 initially that he did not understand it, now you have
19 pointed out two further sentences to him. Ask him the
20 question again.

21 I do not think the Board can place much
22 on what your interpretation is of this paragraph since
23 you are not giving evidence.

24 MR. CASTRILLI: That is fine, I am not
25 giving the evidence, but I think that the paragraph

1 taken in its entirety is clearly speaking about the
2 setting of a shorter rotation age and Dean Baskerville
3 is giving his opinion as to what he thinks about that
4 and --

5 THE CHAIRMAN: You are trying to get this
6 witness' opinion as to whether he agrees or disagrees
7 agrees with Dean Baskerville. Why don't you ask him
8 that.

9 MR. CASTRILLI: Yes. I don't think it is
10 the technical -- or the four kinds of rotations in
11 general that Dr. Osborn was speaking of earlier.

12 I think Dean Baskerville is clearly in
13 this paragraph talking about the setting of shorter
14 rotation age and how he believes that to be a departure
15 from the standard and why don't I simply give Dr.
16 Osborn an opportunity to read the paragraph and give me
17 his opinion as to whether he agrees with Dean
18 Baskerville or not.

19 Maybe he can do that over the break.

20 DR. OSBORN: With respect to the
21 paragraph. If you change the rotation and in the case
22 in the paragraph of shortening the rotation, you should
23 have reason and rationale as to why you shorten or
24 change or lengthen the rotation.

25 Now, the other parameters that go with it

1 are the explanation for why you make the change. But
2 if you change the rotation, even if you set the
3 rotation, you should have a rationale for where you set
4 it.

5 And even if you shorten it, you should
6 have some cognizance of whether or not you can reach
7 the size of tree you are trying to grow in the time
8 horizon, yes. I have no difficulty with that
9 statement.

10 MR. CASTRILLI: Q. Dean Baskerville is
11 indicating he has concerns with the Ministry's decision
12 to shorten the rotation age. Do you agree with the
13 concerns expressed by Dean Baskerville in that
14 paragraph?

15 DR. OSBORN: A. Well, I would have to
16 look unit-by-unit, location-by-location,
17 product-by-product, result-by-result before you can
18 categorically come out and say: On here the rotation
19 for this area, this working group should be. I can't
20 blanket across-the-board.

21 Q. Well, just generalize the comment.

22 MR. FREIDIN: Does the statement say that
23 he's concerned about MNR shortening the rotation.

24 MR. CASTRILLI: Of course it does. Well,
25 I think the paragraph speaks for itself. It is not so

1 obscure as Dr. Osborn seems to think it is. it is
2 patently clear it is talking about rotation age and a
3 concern Dean Baskerville has about it and how he
4 regards it as a departure from the standard.

5 And all I want is -- the noise to go
6 away -- all I want is Dr. Osborn's opinion of the
7 paragraph.

8 THE CHAIRMAN: Okay. Why don't we handle
9 it this way: Why don't we take the break at this
10 point. Dr. Osborn, you read the paragraph in its
11 entirety, come back Mr. Castrilli ask him a question on
12 it, let's get his answer and if you disagree with it or
13 you want to call evidence on your own at a later time
14 to show that some other expert can put a different
15 opinion on it, do so.

16 But there is no sense going back and
17 forth as to whether Dean Baskerville meant or he didn't
18 mean, let's just get from this witness what this
19 witness agrees with or doesn't agree with and then move
20 on.

21 MR. CASTRILLI: Fine, that was my last
22 question on this part of my cross-examination.

23 THE CHAIRMAN: Okay. 10 minutes we will
24 be back.

25 ---Recess at 4:20 p.m.

1 ---Upon resuming at 4:47 p.m.

2 THE CHAIRMAN: Thank you. Be seated,
3 please.

4 Okay, Mr. Castrilli. With respect to the
5 remainder of the cross-examination, as I indicated
6 before the break, the Board is not going to entertain
7 speculation as to what one of these authors meant by
8 what he said in their report.

9 You can ask the witness whether he agrees
10 with the statement, disagrees with the statement and
11 the witness can give his opinion. And if you wish to
12 challenge that opinion at a later stage, you can call a
13 witness of your own to perhaps give a contrary opinion
14 to what that statement means. And if you want to find
15 out what the author meant, you can call the author at
16 some stage of the game.

17 Also, Dr. Osborn and Mr. Armson, when the
18 counsel is asking a question that could be answered in
19 a concise way - yes, no or with a slight expansion - do
20 it in that fashion, as opposed to having every question
21 asked, turning into a rehash of some of the information
22 that was given in direct, otherwise I think these
23 cross-examinations will go on indefinitely and we are
24 not making much progress because some of the answers,
25 in fact, are reiterating what was already said in

1 direct for which the Board has taken cognizance of.

2 Okay, Mr. Castrilli, you can continue at
3 this point.

4 MR. CASTRILLI: Q. Dr. Osborn, I think
5 you were going to give your comments on page 19 of
6 Exhibit 16, the first full paragraph on that page.

7 DR. OSBORN: A. Yes. The paragraph in
8 fact is a caveat to the preceding paragraph which talks
9 about rotations in general. So this particular
10 paragraph I reckon is a caveat, it is a beware under
11 these conditions what may happen.

12 In the paragraph that starts: "There is
13 a potential to increase...", the first two sentences I
14 agree with. If you shorten the rotation you increase
15 the MAD.

16 The next sentence: "If the reduced
17 rotation is not consistent with...the problem doesn't
18 arise until the end", I agree with.

19 The third statement: "At the end of the
20 rotation the appropriate area will be available for
21 harvest and the trees aren't big enough...", I agree
22 with with a comment and we have been through evidence
23 indicating in red pine you can get the same volume in a
24 shorted period if you do silviculture.

25 "The current system requires

1 justification of all changes in rotation length away
2 from the standards...", I agree with.

3 The last statement I am not sure about
4 without reading the six plans that Dr. Baskerville went
5 through.

6 Q. That is fine, thank you.

7 I want to take you back to paragraph 92
8 there of Exhibit 78. You say there that traditionally
9 Ontario has used area regulation as its yield
10 regulation tool.

11 Dr. Osborn, isn't it true that
12 traditionally Ontario, until recently, had used area
13 volume as the approach?

14 A. No, since the late 19 -- since the
15 1950s, as far as I am aware, the method of area
16 calculation that was described in MAD is the main
17 process used in yield regulation in Ontario.

18 Q. Exhibit 119 -- excuse me Exhibit 112,
19 page 19. Now, you have just said since the 1950s
20 Ontario has used area regulation which I presume is
21 weighted area approach?

22 A. Whether the area has been weighted by
23 average age or not, that has varied over the time. It
24 is straight area with a volumetric estimate, the way it
25 was described.

1 Q. Okay. The paragraph beginning
2 paragraph A:

3 "Calculation of the allowable cut for
4 forests managed under silviculture
5 systems that produce more or less
6 evenaged stands such as the clear-cut and
7 shelterwood system shall be done by both
8 an area and volume method."

9 That seems to tell me -- and you are the
10 author of this manual; are you not?

11 A. I was in the group of people who
12 revised it back I think in '77.

13 Q. This paragraph seems to tell me that
14 the method used in 1977 was an area and volume method.
15 Why do you say it is an area regulation method only?

16 A. If you look at page 18 in Table 7.
17 In Table 7 on page 18 of the same reference, you will
18 find there is area method with the area given and the
19 volume given and that volume is derived the way I
20 showed it, as the volumetric estimate from the area
21 method.

22 The right-hand column of Table 7 shows
23 the volumetric method which is the method they speak
24 about on page 19 is that of Gerhardt.

25 Q. That is right, that was my next

1 question. The formula by Gerhardt is a volumetric
2 method too; isn't it?

3 A. Volumetric plus increment.

4 Q. That's right. So I don't understand
5 when you say in paragraph 92 that Ontario has used an
6 area regulation method as its yield regulation tool.
7 Isn't it obvious they have used both in the past?

8 A. No. As I have told you, they have
9 used area and if you are aware of the practices in
10 1970, the area was the definite form of control and the
11 volumetric method was calculated using Gerhardt's and
12 was used as a comparison to try and have a better
13 understanding what was happening in the growth aspects.

14 It was not used, as far as I am aware --
15 Gerhardt's equation was never used as the equation for
16 control.

17 Q. And you wouldn't know whether other
18 well-known foresters or forestry consultants in Canada
19 assumed Ontario used that area/volume approach; would
20 you, such as FLC Reed in whatever exhibit that is now?

21 I will just find the exhibit number for
22 it. Exhibit 117. Sorry, do you have the report?

23 A. Yes.

24 Q. I refer you to page 15. Just look at
25 the second paragraph on the left-hand side of the page.

1 In this page Reed refers to two methods used for
2 calculating the allowable cut in Ontario, the area
3 method and Gerhardt's volume formula.

4 The second paragraph:

5 "The revised allowable cuts for Crown
6 forests have been calculated using an
7 age-class method and the concept of
8 normal forest for an area cut control
9 calculation. This initial calculation
10 was then checked against a volumetric
11 calculation using Gerhardt's formula.
12 The finalized cuts are expressed first in
13 gross total volume and then reduced to
14 net allowable cut through the application
15 of local deductions for tops, stumps and
16 defect."

17 And the next paragraph he notes:

18 "For the purposes of the present study,
19 the annual allowable cuts have been
20 accepted as calculated by the province."

21 Now, just so I am clear on your
22 testimony, notwithstanding what appears in Exhibit 112,
23 notwithstanding what appears in Exhibit 117, your
24 testimony is Ontario has traditionally only used area
25 regulation as its yield regulation tool; is that

1 correct?

2 A. As the basic yield regulation tool,
3 area with a volumetric estimate has been the way of
4 doing business.

5 Q. Paragraph 97, it is on page 42. Can
6 you confirm in that paragraph that the volume per
7 hectare estimate is based on FRI data?

8 A. It is usually.

9 Q. Usually. Paragraph 99, and I guess I
10 should refer you to page 249, which is Document 47, at
11 the same time. This is the table entitled: Predicted
12 Conditions after 20 years. Can you advise the Board in
13 that table whether the volume per hectare figures are
14 for fully-stocked stands?

15 A. On page 249?

16 Q. Yes.

17 A. No, they are not.

18 Q. If that's the case, Dr. Osborn, how
19 could this be termed as normal growth as you do in
20 paragraph 99, Item 4?

21 A. The concept in paragraph 4 on page 43
22 is that all the stands in the 61-80 age-class move into
23 the 81-100 over the next 20 years. They all move as
24 one would expect them to move.

25 Q. Are you finished?

1 A. Mm-hmm.

2 Q. Could you confirm that the FRI
3 adjusts the volume according to stocking level and,
4 therefore, the volume is not normal for fully-stocked
5 stands?

6 A. No, the FRI doesn't adjust the
7 stocking. The stocking adjusts the FRI. The stocking
8 value is used to reduce the fully-stocked value down to
9 its empirical value as found in the forest today.

10 Q. So you remain convinced that your
11 Item 4 is correct and not wrong; is that right. Item 4
12 on paragraph --

13 A. Yes, the age-classes move as one
14 would expect them to move.

15 Q. Now, commencing at page 250, and it
16 will be Document 48, and moving right through to
17 Document 251 -- excuse me, 51, just beginning firstly
18 at page 250, your testimony is that the history and
19 susceptibility of an age-class to losses due to fire,
20 wind, pests, et cetera, is taken into account in the
21 MAD assumptions; is that right?

22 A. It is taken into account after the
23 MAD is calculated.

24 Q. So that when we look at Exhibit 7,
25 for example, the Timber Management Planning Manual, it

1 indicates that these factors are taken out of the MAD
2 calculation after it has been made and not before or
3 during; is that right?

4 Take a look, for example, at page 146 of
5 Exhibit 7.

6 A. As I understand --

7 Q. Item 6, for example.

8 A. As I understand page 146, it is a
9 continuance of the basic philosophy in Ontario that
10 those factors of fire and pests are taken out after the
11 fact and not before. That philosophy is being
12 continued in this manual.

13 Q. So that these deductions that one
14 would see on the tables that are required to be
15 produced pursuant to the manual are based on actual
16 losses and not projected losses; is that correct?

17 A. Yes, Table 6.1 is the annual
18 depletions actually, it is an after-the-fact piece of
19 history.

20 Q. Just referring you to page 43,
21 paragraph 102. Could you advise the -- sorry?

22 MR. FREIDIN: What page?

23 MR. CASTRILLI: Page 43, paragraph 102.

24 Q. Could you advise the Board how the
25 objective of sustained yield can be met by the MNR's

1 MAD method from a management unit with different
2 initial age-class structures?

3 DR. OSBORN: A. Yes. You have got two
4 objectives in sustained yield, you have got -- in fact
5 in my cliché of wood in the mill door today, wood in
6 the mill door tomorrow. The MAD calculates for the
7 existing five-year period what the estimated amount
8 going in the mill door will be in the next five years
9 and, in fact, the new Timber Management Planning Manual
10 makes an effort to deal with that requirement quite
11 explicitly.

12 In the second half of the objective
13 statement, organizing the forest in such a way as to
14 ensure wood in the mill door tomorrow, that's taken
15 into account by running the MAD calculation through the
16 whole of the rotation to note the possible impacts that
17 that age-class structure may have on wood supply in the
18 future.

19 Q. So could you confirm for me that the
20 yield would be variable using that method?

21 A. It can be, certainly. That's why we
22 run it through the whole rotation, to have some
23 understanding of what that range of values may be.

24 Q. Now, you have advised the Board that
25 when one looks at Table 6.1, pages 145 and 146, the

1 annual report of depletion by area, that the depletion
2 is really an accounting, it's based on what actually
3 happened.

4 Can we look at page 250 and 251 of your
5 evidence, those will be Documents 48 and 49. The
6 impression I am left with is that it appears that you
7 are characterizing the depletions as projections that
8 can be deducted before they actually happen.

9 Is that a misapprehension on my part?

10 A. It is a misunderstanding on your
11 part.

12 Q. So one should not read Documents 48
13 and 49 as if they are meant to be projections?

14 A. When I went through each of the
15 values on those two tables I was rather careful to
16 explain those which are taken into account in front of
17 and those which are taken into account afterwards.

18 For example, the first one on page 250:
19 Review the cut requirements. That's a value taken into
20 the account in the front of the calculation, not the
21 end, whereas the one on history of natural losses is
22 taken into account after the fact. And that's the way
23 that the MAD is calculated at this point in time, at
24 this point in time.

25 Q. Sorry, maybe just for my benefit then

1 you could just advise me for Items 3, 4 and 5, are they
2 before or after?

3 A. 3 is after; 4 is after - that one is
4 really subject to change, and we are really trying to
5 nail that one down before, if possible. But the way it
6 says at the moment that is possible land use changes,
7 that is after.

8 The economic accessibility question. I
9 mentioned when I described this evidence that this
10 subject is really under review at the moment, even to
11 the extent of thinking about forest unit designation.
12 And there is a real discussion going on as regards
13 economic accessibility and what that means in forest
14 management.

15 Q. Sorry, what is the status now; is it
16 before or after?

17 A. Right now it is not used at all. It
18 is an after-the-fact, if you like. It is really
19 neither at the moment, but it is something you have to
20 be cognizant of as to how do you structure the entire
21 breakdown of the forest unit to the management unit.

22 Q. Moving to page 251, Items 1 and 2?

23 A. Again, Item 1 on page 251 is a
24 confirmation of the previous page, is an
25 after-the-fact. Item 2, again, I indicated that at

1 this point in time the actual computer algorithm that
2 is used to do this calculation can take the age-classes
3 that one thinks one is going to cut instead of the
4 oldest, which is what I went through when I went
5 through the arithmetic example here.

6 So Item 2 can be a before and, again, I
7 mentioned this before.

8 Q. Just looking at page 171 of Exhibit
9 7, it is the glossary definitions of various terms used
10 in the manual. I ask you to look down at the
11 definition for maximum allowable depletion under
12 Management. It says the -- sorry, do you have the
13 page?

14 A. Yes.

15 Q. "The calculated amount of area from
16 which timber may be depleted over the
17 five-year term of a timber management
18 plan by any means including harvesting,
19 fire, insects, disease, inoperability or
20 because of the allocation of the area to
21 other uses to fulfill the objectives of
22 management."

23 Now, that definition seems again to speak
24 of a projection; would you agree?

25 A. That's what the MAD is, a projection

1 of an area that may be subject to all those forms of
2 depletions listed and they are the forms of depletion
3 listed on Table 61. What actually happened is what is
4 listed.

5 The statement -- the definition is a very
6 clear statement because of the enormous difficulty we
7 had with the term allowable cut which inferred the
8 amount that could be cut was in fact the amount that
9 could be depleted. So Ontario changed the definition
10 very deliberately to make it well aware that this
11 calculation says this is an amount that may be depleted
12 for a variety of causes.

13 Q. The difficulty I am having is that we
14 have a definition which is -- certainly includes a
15 projection element to it, but the actual tables that we
16 referred to earlier are really an accounting, as you
17 have indicated.

18 A. Correct.

19 Q. The problem I am having is how and
20 when does anyone know about whether unharvestable areas
21 are dealt with in the MAD and removed from the land
22 base? Is it on the basis of a projection or always an
23 accounting?

24 A. At this point in time it is on an
25 accounting.

1 Q. You say at this point in time. Are
2 there plans to change?

3 A. Much as there are with all the other
4 forms of depletion, Mr. Castrilli, if we could improve
5 and make more reliable the estimates of what may burn
6 tomorrow or what may be defoliated by insects, if all
7 those projections could be improved to the state that
8 we felt comfortable with them, they may all, may all
9 end up in the front end of the calculation.

10 So all of them are under review to see
11 whether in fact we can improve and better explain the
12 situation. It would be very nice to know exactly how
13 much of the MAD is going to get burned in the next five
14 years. But, unfortunately, our methods of prediction
15 at this point in time are not that precise.

16 Q. Now, staying with Exhibit 7, speaking
17 now of the original MAD calculation, you might see it,
18 say, in Table 4.13 which is at page 73.

19 Can you advise the Board, are the
20 original MAD calculations made for the whole management
21 unit?

22 A. On Table 4.13, it describes at the
23 top -- Table 4.13 or Table 4.13.1?

24 MR. CASTRILLI: Well, Mr. Chairman, this
25 is actually a continuing problem with this exhibit. I

1 don't have a 4.13.1.

2 Q. Let's just refer to the one I do
3 have.

4 DR. OSBORN: A. 4.13 which is criteria
5 for MAD allocation?

6 Q. Yes. MAD calculation?

7 A. Yes. That's done forest unit by
8 forest unit, as indicated in the first column, for each
9 of the forest units, given the area of each forest unit
10 is large enough to warrant management as a forest unit
11 under some objective. Now, typically for all of the
12 major forest units a separate MAD is calculated.

13 And to come back to your question, is it
14 done for the entire management unit, we explained that
15 the MAD calculation is done on a production forest
16 which is only a piece of the total management unit.

17 Q. I am having difficulty with this
18 concept as well. I am talking about the original MAD
19 calculation, is it ever done on a management unit by
20 management unit basis?

21 A. No, it is done for each forest unit
22 within a management unit.

23 Q. The forest unit would be...?

24 A. Working group.

25 Q. Working unit?

1 A. That's a simple translation for you
2 at the moment. Again, we went through an explanation
3 of what a forest unit was.

4 Q. Well, when we get to an annual report
5 depletion, what does that apply to?

6 A. Table 6.1, which is on page 145, the
7 first column again is working group forest unit. So
8 the data are recorded on a working group forest unit
9 basis with one comment, the second column relates to
10 age-class.

11 So within a working group forest unit the
12 depletions are recorded as to which age-class areas are
13 depleted, and that's necessary to update the data to do
14 the recalculation for the ensuing period.

15 Q. The difficulty I am having is in
16 recording the evidence. As I have understood it up to
17 now, it seems to me that what I understood the
18 testimony to be was that there was an original
19 calculation based on the entire management unit and
20 then subsequently depletions are taken off for a
21 smaller area within the management unit.

22 Is that a misapprehension that I have
23 had, or is that not in fact what your testimony has
24 been?

25 A. On page 245 of the evidence -- page

1 245, there is a list of characteristics and the second
2 of those characteristics -- the first one says it is
3 done at the management unit level. The second of them,
4 it is calculated for a forest unit within the
5 management unit.

6 Q. Is there a calculation that takes
7 place at the management unit level?

8 A. Not for the management unit as a
9 whole. There is no single value for the management
10 unit, if that's what you are trying to aim at. It is a
11 set of numbers and a number for each forest unit within
12 the management unit. It is an array of numbers, not
13 one value.

14 Q. I recognize it is not one value, but
15 I am just asking is there -- I think you are now
16 telling me that there is never one value calculated at
17 the management unit level?

18 A. That's what I told you all along.

19 Q. I think the record will show quite a
20 lot of things.

21 Now, staying with Exhibit 7, again
22 referring to page 171, the last line refers to
23 fulfilling the objectives of management. I am not
24 quite clear what you mean by that term.

25 MR. MARTEL: Where are we?

1 MR. CASTRILLI: I am sorry, this is page
2 171 of Exhibit 7. It is on the definition -- the last
3 line of the definition of maximum allowable depletion.

4 DR. OSBORN: You are talking about on
5 page 171 the last line of the maximum allowable
6 depletion definition or will cause the allocation of
7 the area to other uses to fulfill the objectives of
8 management?

9 MR. CASTRILLI: Q. Yes, that's right.

10 DR. OSBORN: A. All right. It is
11 recognized within the five-year planning, the area that
12 is in the production forest or any particular working
13 group or forest unit, may, in the course of that
14 five-year period, be taken out of timber production and
15 put into some other usage within the management unit;
16 i.e., it is taken out of the timber production base and
17 that is a form of depletion from a timber management
18 point of view, it takes hectares out of the production
19 forest that are the basis for the MAD calculation.

20 Q. Sorry, that last phrase though: "To
21 fulfill the objectives of management", applies to the
22 entire definition; does it not, not just to the last
23 phrase?

24 A. Yes.

25 Q. So what do the authors of the

1 definition mean when they say: "To fulfill the
2 objectives of management...", as it relates to the
3 entire definition?

4 A. Well, I am not sure exactly -- I am
5 not sure what other uses I can immediately sort of
6 dream up to think of the objectives of management this
7 alludes to, but what the implication arithmetically
8 means is the hectares are taken out of the timber
9 management production for that particular forest unit.

10 Now, to what end those hectares go, at
11 this point in time I can't say, I don't know. But from
12 keeping track of what happens to the hectares point of
13 view, it comes out of the base in that five-year
14 period. It is recorded in Table 6.1.

15 Q. Does the reference to management
16 there refer to sustained yield management?

17 A. I don't know, to be perfectly honest.

18 Q. You don't know.

19 Let's look at another definition. Page
20 49 of what's now Exhibit 112, the definition of
21 allowable cut. In that exhibit, about halfway down the
22 page it says:

23 'The amount of forest produce how so ever
24 measured that can be cut in a given
25 period under sustained yield management."

1 Now, allowable cut in this particular
2 exhibit is what became MAD; is that right?

3 A. No, not quite.

4 Q. No.

5 A. That's the reason for the difficulty
6 and that's really why we walked away from allowable cut
7 which was unfortunately misleading, given the real
8 state of affairs.

9 Wood was depleted in any forest unit for
10 reasons other than just cutting, and that was really
11 why we walked away from the expression allowable cut.
12 It only told part of the story of what actually
13 happened.

14 Q. So there was no other definition in
15 the glossary for 1977 which described what is now in
16 Exhibit 7 and MAD; is that right?

17 So that in 1977 the only definition of
18 allowable cut that existed is one that included
19 sustained yield. Now, there is no other definition in
20 Exhibit 7, apart from the MAD definition, that could
21 refer to sustained yield management in this context; is
22 there?

23 A. No, Mr. Castrilli, there isn't.

24 Q. So why are you uncertain as to
25 whether MAD now includes sustained yield management?

1 A. I am not uncertain whether MAD
2 includes sustained yield management.

3 Q. That's exactly what you told me a
4 moment ago.

5 A. No, no, no. What you asked me was
6 whether the phrase "to fulfill the objectives of
7 management" necessarily meant sustained yield. Could
8 it have been something else.

9 I have some thoughts as to that statement
10 "to fulfill the objectives of management", may well be
11 something other than sustained yield.

12 Q. Is there a difference from the
13 1977 manual?

14 A. Yes.

15 Q. Thank you. Can you advise the Board
16 why the Ministry went to the definition that we see at
17 page 171 of Exhibit 7?

18 THE CHAIRMAN: Well, did we not cover
19 this in direct, Mr. Castrilli?

20 MR. CASTRILLI: It has been a long time,
21 frankly, Mr. Chairman. If it has been covered, then --
22 apart from what he said five minutes ago, I don't
23 recall anything in direct, but if his evidence would
24 not change from what he said five minutes ago, I don't
25 need to ask the question or he doesn't need to answer

1 it.

2 THE CHAIRMAN: Is there anything else you
3 can add to this answer, Dr. Osborn, that you did not
4 cover when you gave your direct testimony in terms of
5 why the province moved to this new definition away from
6 allowable cut?

7 DR. OSBORN: I don't think so, sir. I
8 think it was explained in direct.

9 MR. CASTRILLI: That's fine.

10 Mr. Chairman, can I have some guidance as
11 to how long the Board intends to sit today?

12 THE CHAIRMAN: Well, that depends to some
13 extent on where you are in your examination.

14 As I understand it, Mr. Castrilli, Mr.
15 Edwards has asked the Board the indulgence of being
16 able to cross-examine this panel when the
17 cross-examinations are taking place for Panel 4, and
18 the reason is, is that he has an engagement elsewhere
19 and he cannot be here for the next couple of days.

20 Since this panel is coming back
21 essentially for Panel 4, the Board has decided that
22 that is a reasonable request and he can examine at that
23 time.

24 I take it, Mr. Freidin, you don't have
25 any objections to that; do you?

1 MR. FREIDIN: No. I might ask Mr.
2 Edwards if he can be of some assistance to the
3 witnesses in terms of defining the areas that he is
4 going to be referring to.

5 THE CHAIRMAN: Yes, we will make sure
6 that he properly alludes to which evidence he is
7 cross-examining, as I assume it will take place when he
8 cross-examines, if he wishes to, on Panel 4 as well.

9 That will leave only, I believe, Ms.
10 Seaborn to cross-examine and then any re-examination by
11 Mr. Freidin. And it looks very much, I believe - even
12 on your original estimates, Mr. Castrilli - that we
13 will probably finish off on Wednesday rather than
14 Thursday.

15 And if we finish early Wednesday, we
16 would like the orientation to take place for the site
17 visit later on Wednesday, if that is possible, and then
18 we will all depart from here Wednesday night or
19 Thursday morning to return to Dryden on Monday.

20 So, how far are you along in your
21 cross-examination?

22 MR. CASTRILLI: Well, it is always a
23 function of the answers I get, as you can tell. I
24 would almost suggest you ask the witness. I would
25 think I am not going to be longer than about another

1 two and half hours.

2 THE CHAIRMAN: All right. Why don't we
3 go until six o'clock tonight and then commence tomorrow
4 and we should finish with your examination by noon, in
5 any event.

6 Then I believe -- are you still between
7 two and three hours, Ms. Seaborn?

8 MS. SEABORN: I think so, Mr. Chairman.
9 But, again, I am not sure what Mr. Castrilli has left
10 but I intend to cut things out rather than add them by
11 going last.

12 It may be that I will finish early
13 tomorrow and there may be some time for some
14 re-examination.

15 THE CHAIRMAN: All right. In any event,
16 you should be able to finish re-examination on
17 Wednesday morning; is that correct?

18 MR. FREIDIN: That's correct. I think,
19 unless -- even it appears based on my work tonight and
20 my thoughts of what happens tomorrow that I can do all
21 of it in the morning on Wednesday.

22 And I would probably be asking that the
23 commencement of the re-examination not commence until
24 Wednesday morning.

25 THE CHAIRMAN: Very well. Okay. So I

1 think we will go to six o'clock tonight.

2 MR. CASTRILLI: Fine.

3 Q. Paragraph 103. Your testimony there
4 is that computer simulations are developed with respect
5 to the effect various actions could have on the forest.

6 Can you advise the Board what computer
7 simulation models the Ministry has to account for all
8 the factors that exist or are referred to in Documents
9 48 to 51?

10 DR. OSBORN: A. At this point in time,
11 in Exhibit 7 there is a description of the three
12 methodologies that are practised - it is given on page
13 184 of Exhibit 7. There are a list of the three ways
14 in which the simulations may be conducted.

15 Now, at this point in time there is
16 really only two of those three that anyone does
17 sensibly because one doesn't do this manually. There
18 are two computerized versions of use of simulation, one
19 is called AWOSFOP, and we went through before.

20 MR. MARTEL: What document are you in?

21 DR. OSBORN: In Document 7, sir.

22 MR. CASTRILLI: Exhibit 7.

23 DR. OSBORN: Exhibit 7, sorry. Exhibit
24 7, sorry. I am sorry, Exhibit 7, the Timber Management
25 Planning Manual.

1 In Exhibit 7 on page 184 there is a
2 description of the three ways in which the simulations
3 may be done and in that last list one of them is manual
4 which I say is typically not done. And the two other
5 ones are both micro-computer versions, one of which is
6 the AWOSFOP model which was briefly alluded to in
7 evidence-in-chief. The second is essentially a
8 simplification of that that was developed to run on a
9 different kind of computer as listed.

10 MR. CASTRILLI: Q. So that would be
11 Items 1 and 2 on page 184?

12 DR. OSBORN: A. Correct.

13 Q. Paragraph 105, you are referring
14 there to growth rates, and I might as well include
15 paragraphs 106 and 107 at the same time.

16 Let me introduce the next exhibit.

17 (handled)

18 DR. OSBORN: Thank you.

19 THE CHAIRMAN: Exhibit 130.

20 ---EXHIBIT NO. 130: Response by MNR to Interrogatory
21 Question No. 7 posed by CELA.

22 MR. CASTRILLI: Q. Have you had an
23 opportunity to read those to yourselves.

24 We asked you in Item No. 2, firstly,
25 Provide us with all studies available to the Ministry

1 including those produced internally regarding growth
2 predictions of forests subject to silvicultural
3 treatments.

4 And your answer as reflected at the
5 bottom of what is now Exhibit 130, you basically
6 indicated that there is a lot of information relied,
7 and in Ontario this silvicultural treatment has not
8 taken place over a very long time, growth and yield
9 data specific to Ontario are limited.

10 And paragraphs 106 and 107 are explaining
11 that for this reason conservative estimates are used in
12 the MNR calculations.

13 Firstly, with respect to the comment in
14 the second response that growth and yield data specific
15 to Ontario are limited, do you mean that predominantly
16 for the boreal forest and for northern Ontario?

17 DR. OSBORN: A. It is more so of the
18 boreal than it is of southern Ontario.

19 Q. And the documentation that MNR does
20 have is going to be produced or has been produced for
21 Panel 4?

22 A. Not for Panel 4 necessarily.

23 Q. Not for Panel 4. Which panel?

24 MR. ARMSON: A. If I may, Mr. Chairman.
25 The treatments that are referred to here are those that

1 will result in increased growth. The treatments,
2 silvicultural treatments with which we have the
3 greatest experience are those of basically
4 establishment, initial regeneration.

5 I think there is quite a difference
6 between those activities, silvicultural activities
7 which really fall within the activities of maintenance
8 which are the on-going treatment on an existing
9 established stand than those which relate to the
10 initial establishment.

11 And I think that is maybe where the word
12 silvicultural has been used in a rather general way.

13 THE CHAIRMAN: Which documentation were
14 you seeking?

15 MR. CASTRILLI: Regeneration.

16 MR. ARMSON: Then that will be spoken to
17 in Panel 4.

18 MR. CASTRILLI: Thank you.

19 Q. And when you say spoken to in Panel
20 4, the documentation you do have has already been
21 filed; is that correct?

22 MR. ARMSON: A. That is correct.

23 Q. Thank you. Paragraph 103, this is
24 the MAD modifications. I believe you have indicated
25 previously that the MAD calculation in Ontario is now a

1 weighted area method?

2 DR. OSBORN: A. Correct.

3 Q. And it is an accelerated area cut
4 method?

5 A. No.

6 Q. No?

7 A. It can be if the forest is
8 overmature.

9 Q. Thank you. Would you agree with me
10 that the -- and it is the area method we now use in
11 Ontario; is that right and, you say, traditionally
12 always have used?

13 A. Correct.

14 Q. Would you agree with me that the area
15 method is a crude one of regulating yield in mixed
16 natural forests?

17 A. Yes.

18 Q. And was given up in Europe early in
19 the 19th Century in favour of regulation by area and
20 volume combined?

21 A. I cannot comment on the last part,
22 but it wouldn't surprise me.

23 Q. I believe you have been advised,
24 given notice of that document. I presume you have had
25 an opportunity to find it in your library.

1 MR. FREIDIN: What is the reference, Mr.
2 Castrilli?

3 MR. CASTRILLI: Brasnett, Planned
4 Management of Forests.

5 THE CHAIRMAN: Exhibit 131.

6 ---EXHIBIT NO. 131: Excerpts from a document entitled:
7 Planned Management of Forests by
by S. Brasnett.

8 MR. FREIDIN: Can the witness be given
9 the text as opposed to the excerpt?

10 THE CHAIRMAN: Yes. You will just be
11 referring to the excerpts filed, is that right?

12 MR. CASTRILLI: Yes.

13 Q. I refer you to page 131 of what is
14 now Exhibit 131, the last paragraph on the page:

15 "The area method is a very crude one of
16 regulating yield in mixed natural forests
17 and was given up in Europe early in the
18 19th Century in favour of regulation by
19 area and volume combined."

20 And it says: "Which is going to be
21 described in the next chapter."

22 "It did however render valuable service
23 in bringing order out of chaos in similar
24 primitive conditions (for example, in
25 parts of the tropics) and still has its

1 uses."

2 Now, Dr. Osborn, has Ontario taken a step
3 backward in forest management or what do primitive
4 conditions in the tropics and northern Ontario have to
5 do with each other?

6 MR. OSBORN: A. Mr. Brasnett,
7 unfortunately in his career I don't think ever had the
8 opportunity of visiting North America. His background
9 is very much tropical and southeastern Asia and he also
10 lectured in Oxford. I don't think, as far as I know,
11 he ever saw North America.

12 So he has no way of comparing as to
13 whether or not North America's state of forest
14 management in any way, shape or form compares with
15 anything he is aware of. So he makes no reference to
16 North America whatsoever.

17 However, when he wrote this, the State of
18 Forest Management in North America, North America in
19 the forest management scene is relatively primitive.

20 THE CHAIRMAN: When was the date of this
21 publication?

22 MR. CASTRILLI: The second page, Mr.
23 Chairman, the first publication date is listed as 1953.

24 THE CHAIRMAN: Thank you.

25 DR. OSBORN: At 1953 when this book was

1 written, the State of Forest Management in North
2 America, including the United States, in the total
3 world-wide forest management scene was relatively
4 primitive.

5 In all due respect, even within the
6 United States, parts of it were not as half as far
7 advanced as countries like India, South Africa. India
8 celebrated its centenary of forest management back in
9 1968 or '69.

10 MR. CASTRILLI: Q. So if I understand
11 your assessment of the paragraph, you agree with the
12 first part up to the first column?

13 DR. OSBORN: A. I said so.

14 Q. Thank you. Would you also agree that
15 acceleration is intentional short-term overharvesting?

16 A. Not necessarily, it depends on the
17 level of acceleration.

18 Q. Page 20 of Exhibit 16. We are
19 looking at the second sentence on that page, and then I
20 would like to read into the record the third -- fourth
21 sentence -- beginning with the fourth sentence in that
22 paragraph on the left-hand side of the page.

23 And the sentence begins:

24 "It is not clear why acceleration is
25 mandated in the Ontario Ministry of

1 Natural Resources when it is clear there
2 are insufficient markets to absorb the
3 volume..."

4 Do you have that page?

5 A. I certainly have that sentence, yes.

6 Q. All right. Let me finish the
7 paragraph, first:

8 "...insufficient markets to absorb the
9 volume generated by harvesting the
10 additional area. Particularly, it seems
11 unwise to accelerate current harvest in
12 working groups and on sites where there
13 is an opportunity to store wood on the
14 stump in order to even out the future
15 woodflow and to smooth out woodflow
16 with respect to markets during the
17 transition to a balanced age-class
18 structure. The use of acceleration is
19 creating additional surpluses in a
20 situation where surplus is already a
21 serious impediment to orderly management.
22 Acceleration, as mandated in current
23 planning, is not based on sound
24 biological and economic principles."

25 Do you agree with that assessment by Dean

1 Baskerville?

2 A. It has now been corrected and
3 changed. Yes, I agree with the statement with certain
4 provisos that Dr. Baskerville does not state, that I
5 wish to have read into the record.

6 The fact that the calculation calculates
7 an accelerated value did not, repeat, not necessarily
8 mean that all that area would be cut or depleted and,
9 if there was no market for it, it almost certainly --
10 not almost, it would not have been cut if there was no
11 market.

12 The fact that the calculated value was
13 120 and the market was 80 inferred that 80 would be cut
14 not 120. The question was asked earlier: Would we cut
15 if there was no market, and the answer was no.

16 So that the calculation calculates the
17 accelerated value. What may be taken as a maximum
18 depletion. However, the cut is at the market level
19 which may be a lot less.

20 So in the taking of that accelerated
21 value and the actual cut over time, there may in fact
22 not be any accelerated cut at all.

23 Q. We will have the results of the
24 Ministry's undertaking in October comparing planned
25 versus actual; is that correct?

1 A. I think that was the estimated time.

2 THE CHAIRMAN: Somebody is trying to give
3 you a message, Mr. Castrilli.

4 MR. CASTRILLI: I am actually thinking of
5 taking it. In light of the fact that we are close to
6 six o'clock, I have a fairly large area that will
7 probably take us well beyond it.

8 Perhaps I could suggest that it would be
9 convenient to stop now.

10 THE CHAIRMAN: Very well. The Board will
11 adjourn until 9:30 tomorrow morning.

12 [unclear]

13 ---Whereupon the hearing adjourned at 5:45 p.m., to
14 reconvene Tuesday, July 12th, 1988, commencing at
9:30 a.m.

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